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FOREIGN BROADCAST INFORMATION SERVICE

JPRS Report

Nuclear Developments

SPECIAL NOTICE

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JPRS-TND-87-011

2 JUNE 1987

NUCLEAR DEVELOPMENTS

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MPP SAYS MISSILE LAUNCHER PROJECT FLOUTS NUCLEAR POLICY

Toronto THE GLOBE AND MAIL in English 15 Apr 87 p A5

[Article by Stanley Oziewicz]

[Text]

Ontario Premier David Peterson is flouting the Legislature's resolution against nuclear weapons by tolerating the assembly of U.S. missile launcher chassis in London, New Democratic Party MPP Richard Johnston said yesterday.

Mr. Johnston also said the province stands to profit directly from nuclear weapons production through its part-ownership of Varity Corp., formerly Massey-Ferguson.

A British-based unit of Varity, Perkins Engines (Shrewsbury) Ltd., is building diesel engines for vehicles to carry U.S. Air Force Midgetman missiles.

The London assembly plant of General Motors of Canada Ltd. is building chassis for the launchers.

"With this contract," Mr. Johnston said of the GM production, "Ontario moves once again into direct production for nuclear war — in this case the transportation of nuclear weapons, in clear violation of the spirit of the resolution passed in the Ontario Legislature on Nov. 13, 1986, declaring our province a nuclear-weapons-free zone."

In an open letter to Mr. Peterson, Mr. Johnston said that although the Premier was not in the Legislature for the vote, he had indicated his support in principle for ridding the province of nuclear weapons.

Varity announced earlier this month that Perkins Engines had been awarded a contract valued at up to $40-million (U.S.) to supply diesel engines to a unit of Boeing Co. of Seattle and an associated company for a prototype vehicle to carry Midgetman missiles.

A Varity spokesman said at the time that Perkins' Shrewsbury plant will initially supply Boeing and Loral Defense Systems of Arizona with four Condor CV-12 engines, worth a total of $300,000 (U.S.). The engines are to be delivered this fall to the London GM assembly plant, where the launch vehicle chassis are being built.

But the Varity spokesman said that contract could be worth as much as $40-million (U.S.) because Boeing and Loral have indicated plans to buy up to 500 Condor engines.

/9317
CSO: 5120/7

MONTREAL FUSION RESEARCH FACILITY GOES INTO OPERATION

Toronto THE GLOBE AND MAIL in English 2 Apr 87 p B9

[Text]

Canada has long been a world leader in nuclear fission technology; it is now taking a significant step forward with the other process — nuclear fusion.

The Montreal fusion research facility became operational last week when scientists turned on a new fusion reactor and produced high-energy plasma — very hot, ionized gas — for the first time.

The research laboratory, Tokamak de Varennes, is one of the world's most advanced fusion research operations, according to spokesman Richard Bolton.

It will provide information on fusion plasmas under the high-temperature conditions that are typical of nuclear power plants. The data could ultimately be used to build a commercial power reactor.

About 100 scientists and engineers will work at the lab.

The $55-million centre was financed by the National Research Council, Hydro-Quebec, the University of Montreal and other institutions.

The lab is considered a significant advance for fusion research in Canada. The country, however, lags well behind the rest of the world, where about $2-billion is spent on fusion research annually.

Hitachi Ltd. of Japan, for instance, built its first nuclear fusion device in 1958, and has built 27 since. These reactors have given company scientists a wealth of basic information that has been used to pioneer such commercial products as high-frequency brazing, electron-beam welding, superconducting magnets and ion implantation.

Scientists have persevered with nuclear fusion because it promises to provide a virtually unlimited supply of cheap energy.

/9317
CSO: 5120/7

NUCLEAR SAFETY CONFERENCE PROPOSED IN DECEMBER

Tokyo MAINICHI DAILY NEWS in English 1 May 87 p 12

[Text]

SEOUL (Kyodo) — Yataro Mitsubayashi, Japanese cabinet minister in charge of the Science and Technology Agency, Wednesday proposed a nuclear safety symposium of eight Pacific basin countries in Tokyo in December.

Government officials of South Korea, the United States, Canada, China, Malaysia, Indonesia, Thailand and Mexico will be invited to the Dec. 8-10 forum to be sponsored by the government's Nuclear Safety Commission, according to Mitsubayashi.

All eight countries have nuclear power plants in operation.

While South Korea, the United States and Canada have nuclear power plants in operation, China is currently constructing, and Indonesia, Thailand, Malaysia and Mexico plan to build such facilities.

He said officials of France and West Germany, exporters of nuclear equipment to the region, will also be invited to the symposium.

Mitsubayashi visited here Wednesday to discuss Japan-South Korea cooperation in the field of nuclear safety.

The proposal was made in response to requests from developing countries in Asia for similar Japanese cooperation following the explosion of the Chernobyl nuclear power plant in the Soviet Ukraine in April last year.

Japanese officials said nuclear power plant operation regulations, emergency measures in the event of an accident and safety guidelines are expected to be major topics of discussion at the symposium.

Regional cooperation in an emergency situation will also be taken up, according to the officials.

/9317
CSO: 5160/038

JAPAN, USSR COOPERATE ON NUCLEAR POWER SAFETY

Tokyo NHK Television Network in Japanese 1000 GMT 26 Apr 87

[Text] One year has elapsed since the Chernobyl nuclear power plant accident. Meanwhile, the Japan Atomic Industrial Forum [JAIF], representing utility companies and manufacturers of nuclear power equipment, and the Soviet Ministry of Nuclear Power, created after the Chernobyl accident, have agreed to promote cooperation between them to ensure safety.

The Soviet Union had been developing its nuclear power industry on a dual basis, involving both the graphite type and the light water reactor type plant, the latter being the one used in Japan and the United States. After the accident, however, the Soviet Union decided to shift emphasis to the latter type, and the above Japan-USSR agreement, concluded in response to a Soviet proposal, focuses on technological cooperation in light water reactor operations.

As for specific areas of cooperation, the two sides have so far selected two areas--technology to monitor the orderly operation of major equipment and technology for introducing robots to operate and monitor atomic reactors.

For this rechnological cooperation, JAIF is preparing to send seven experts to the Soviet Union next month and receive Soviet specialists this fall.

/9317
CSO: 5160/035

CIVIL DEFENSE TASKS REDEFINED FOLLOWING CHERNOBYL ACCIDENT

More Effective Civil Defense Measures

Sofia GRAZHDANSKA OTBRANA in Bulgarian Feb 87 pp 3-4

[Article by Maj Gen Ivan Sultov: "The Civil Defense Bodies and Their Readiness to Act With Increased Radiation"]

[Text] The situation which arose in our country during the month of May 1986 unambiguously showed that the Civil Defense [CD] bodies had to pay closer attention to the problems of increasing the readiness of the system to operate under the conditions of increased radiation. The past period has been full of not only systematic measurements of the radiation background, the degree of contamination of the air, water, soil, food products and other environmental elements, even though the background has been within the natural limits, but also planned and effective work to systematize, analyze and think out the acquired experience and its applied application for increasing the readiness of CD to protect the public and the national economy with radioactive contamination as a result of emergencies in nuclear units.

In this area, positive results have been achieved. The initial theoretical study has been gained on the questions of the action of the CD bodies in such situations. The knowledge has been presented to the leadership and command personnel in the appropriate various forms of instruction and assimilated to one or another degree. The personnel from the CD administrative bodies have gained systematic knowledge and basic skills in controlling the defense of the public and the national economy under the conditions of increased radiation. The necessary prerequisites have been created for training the public in the area of its conduct and self-defense in such situations. The training programs have been adjusted and training aids compiled. Substantial improvements have been made in the radiation surveillance system. The tasks are being successfully carried out of providing its bodies with low-background radiometric equipment. The ongoing systematic laboratory analyses of the contamination of food products and environmental elements are being successfully employed by the appropriate scientific elements not only for purely scientific purposes involved with determining the essence and patterns of radioactive contamination but also for drawing practical lessons for protecting the public and the national economy in eventual future emergency situations. This, however, is only the start. As is known, nuclear power

plants hold and in the future will hold a priority place in the electric power system of our nation. World experience shows that in spite of the exceptionally high reliability and high safety of the nuclear plants, emergencies cannot be excluded and as a consequence of which the nation may be exposed to radiation from external or internal factors. The specific experience from Chernobyl requires that we have a new approach to protecting the public with the development of severe radiation emergencies. In this sense, the tasks and functions which must be carried out by the CD bodies must be examined in two aspects. In the first place, the continuing of work to carry out the designated tasks related to increasing the preparedness of CD to act under the conditions of radioactive contamination as a result of an external (from outside our country) exposure and, secondly, a rethinking of the ideas and preparedness for CD to act under a more complex situation, that is, when a serious radiation emergency has arisen in our nuclear power plant accompanied by the release of a certain amount of nuclear fuel into the atmosphere.

In the first instance we must complete what we have commenced. The knowledge gained by the supervisory and command personnel must be widened and deepened to a degree making it possible to successfully perform their functional duties involved with increasing the readiness of the administrative and economic units to function successfully under the conditions of radioactive contamination. It is particularly important for the supervisory and staff CD officials to provide further training and teamwork of the CD bodies in managing the protective sanitary-hygiene and other measures with radioactive contamination. The complete mastery by the personnel of the staff bodies of the radionuclide composition of radioactive contamination as well as the nature and duration of the effect of the appropriate nuclides on the individual organs of the human body will make it possible to more competently direct the protective measures. The training of the population in defense and self-defense and the learning of the rules of conduct by the public with varying degrees of radioactive contamination remain a particularly responsible task. This requires that unity be brought into the knowledge and rules of conduct which must be mastered, the ensuring of high preparedness of the leaders of the mass training exercises and the CD instructors in the primary and secondary schools, and the establishing of a system for efficiently using the mass information media (central and local) for propagandizing the specific knowledge in the area of self-defense, personal hygiene and rules of conduct. Particularly effective can be the broadcasts by Bulgarian Television on Civil Defense by not only providing greater effectiveness and concreteness but also by finding suitable forms for incorporating the designated problems in other television shows, particularly those designed for students and the youth. Exceptionally crucial is the forthcoming task of further generalizing the acquired experience and working out scientifically sound standards of tolerable doses for radioactive contamination of food products and other environmental objects as well as uniform procedures for carrying out radiation surveillance and laboratory control. It is also important that the various sectors and subsectors of the national economy be concerned with elaborating rules and standards of conduct and action in managing agricultural and other activities under the conditions of radioactive contamination. This applies particularly to the subsectors of the food industry, transport, agriculture, domestic and foreign trade, public health, water supply and the appropriate

scientific research and design organizations. In the second instance, when a critical situation has arisen as a result of a major radiation emergency at our nuclear plant, the tasks of CD are more complex and crucial and can be reduced to two main groups: the first -- preparing and carrying out rescue and immediate emergency reconstruction work in the area of the nuclear plant site and second -- organizing and carrying out protective and rescue measures in the areas adjacent to the nuclear plant. In the first group, even though not related to the functions of CD, are the tasks of carrying out new technical ideas under the leadership of scientific workers (engineers, power engineers and physicists), ensuring the safety and stability of the nuclear plant as well as constructing additional safety systems which exclude the possibility of major radiation emergencies as the result of the building up of accidental errors made by the operating personnel. This work is underway. The successful carrying out of rescue and emergency reconstruction work requires the preliminary forecasting of the nature, development and consequences from different-scale major radiation accidents and on this basis the elaboration of different models of action. The experience of Chernobyl has shown that major improvements must be made in the safety plan as well as in organizing and manning the various emergency technical crews and groups of the power plants and the supplying of them with special clothing making it possible to successfully carry out containment and emergency reconstruction work with a high level of radioactive contamination. This also applies to the site and regional firefighting services which must be provided with special equipment and extinguishing agents and the personnel with light protective clothing which will protect them from not only high temperatures but also radioactive contamination. We must organize specialized airborne and ground radiation reconnaissance bodies for monitoring the behavior of the stricken reactor and the power of the radioactive releases and supply the corresponding bodies and forces with additional dosimetric devices designed to operate with high radiation levels. For reducing the degree of radioactive contamination it is essential to organize measures to "catch" the radionuclides released from the stricken reactor as these are deposited on loose sand, clay and lead used for this purpose and so forth. The planning and stockpiling of such materials and the establishing of an organization for spreading them over the stricken reactor are imperative. There must be preliminary study and elaboration of the question of creating a method and organization for "burying" the stricken reactor as well as mastering the specific features of decontaminating the terrain, the buildings and equipment. Not in last place is the need to create a preliminary organization for providing special medical aid for irradiated personnel from the specialized formations carrying out the containment and emergency reconstruction work. The setting up of a specialized hospital with a polyclinic will play an important role in this regard.

The second group of tasks related to organizing protective and rescue activities in areas close to the nuclear plant, in addition to their complexity and responsibility are also characterized by their scale as they will involve the entire populus and all sectors of the national economy. To begin with, in considering the previous experience of ours and the USSR, it is imperative to put into effect a plan for protecting the public with a major radiation accident at a nuclear plant and to work out such plans in the appropriate okrugs and obshtinas and to carry out practical measures for their

all-round support and mastery by the entire population as well as by the appropriate CD bodies and forces.

In the system of protective measures, an important place falls on the establishing of the requisite organization for carrying out a rapid and effective forecasting of the consequences from the occurring major accidents and the prompt warning of the populus of radioactive contamination. In this regard, the appropriate responsibilities must be assumed by the nuclear plant leadership (and in the absence of this, the person in charge of the shift on duty) as well as the persons on duty at the okrug and obshtina people's councils. The initial calculations and studies must be filled in by a network of radiation surveillance posts and radiological reconnaissance bodies, these must be supplied with the appropriate equipment, instruments and communications and conditions established for their successful operation with a high degree of radioactive contamination. Organizational and staff changes will also probably be imperative in the other CD bodies and forces. It would be useful to establish strong formations for carrying out emergency reconstruction work, for decontaminating the terrain, for special personal decontamination and so forth. Directly related to the protection of the public is the establishing of supplies of antedotes and the appropriate organization for carrying out rapid iodine preventive treatment, the supplying and early distribution of individual protective gear for the endangered public, the actual preparation in each house of a separate room for quick hermetization in which the occupants will take shelter, the establishing of an ordered system for rapid evacuation of the imperiled public and the lodging of them in population points making it possible to find employment.

Also requiring solution are the problems involved in supplying the endangered public with noncontaminated food products, with noncontaminated water by using mineral springs and waters from previously readied deep wells. Particularly complex are the problems related to protecting animals in the disaster areas and the successful functioning of agricultural activities in these areas. The successful execution of protective measures to a large degree is predetermined by the previously established and systematically trained control system, that is, a system of control bodies and posts and a communications network.

The work done up to now in preparing Civil Defense to operate under the conditions of increased radiation is just a beginning. The main thing in our further work is to establish an organization for practically resolving the urgent problems.

Agricultural Aspects of Radiation

Sofia GRAZHDANSKA OTBRANA in Bulgarian Feb 87 pp 5-7

[Article by Senior Science Associate First Degree, Doctor Tseko Ivanov, director of the Central Laboratory for Radiation Defense and Toxicology Under the Agricultural Academy: "Radioactive Danger and...Our Security"]

[Text] [Editorial Note] The use of atomic power for peaceful purposes, albeit rarely, under accidental conditions, can lead to the depositing of radioactive substances in the environment. This was the case after the

accident at the Chernobyl Nuclear Plant on 26 April 1986. A good deal of time has passed since then but the lessons remain and it is now imperative to soberly assess the situation and analyze the acquired experience. For this reason, the editors have sought out one of the specialists on radiation defense and toxicology and asked him to describe the effect of the radiation protective work after the accident. Certainly, the problem has other aspects but these will be taken up in future issues.

[Text of article] The particular features of the year's season and certain other circumstances led to the spread and localizing of radioactive fallout on the territory of our country. It was a question of a rapid assessment after precise elucidation of the situation and the adopting of the appropriate practical measures. The precipitating of radionuclides from the air and their increase after the fallen rains at the beginning of May came on the developed growing bulk of feed grasses, vegetables and autumn-spring crops which were appropriately contaminated. The soil was largely covered with vegetation, with leafy bulk, and this held a more significant portion of the precipitated radionuclides. The isotope composition of the occurred radioactive contamination and particularly the ratio between the individual radionuclides were different from those during the atmospheric nuclear tests in the 1960s. Of the identified radionuclides, most were characterized by a short half-life, that is, their biological danger for man was less due to their difficult assimilation and their insignificant involvement in the organism's metabolism.

The radiation situation required continuous and extended across-the-board surveillance carried out by highly sensitive gamma analyzers at specialized institutes and laboratories under several departments. This is coordinated by the Permanent Commission for Combating Natural Disasters and Major Production Accidents Under the Bulgarian CD Staff. The rapid and accurate determination of the radiation situation in the various areas of the country also predetermined the effectiveness of the protective measures which were of health, social and economic importance.

The overall external radiation formed as a result of the fallout of radioactivity over the nation was most significant at the beginning of the accident. This exceeded the natural radiation background by from 3- to 10-fold and was caused basically by gamma-emitting radionuclides of which around 90 percent was iodine 131. The radiation level was insignificant and due to the lack of any danger to the public, measures were not initiated leading to remaining in shelters. There was a similar situation with the radioactive contaminating of the drinking water which was far below the dangerous level.

In the atmosphere and on the earth's surface, particles were recorded with high radioactivity and these represented a potential danger with ingestion by the public. In line with this, the mass information media and public organizations recommended the organizing of stricter observance of personal hygiene and the avoiding of sanitary and other activities leading to the raising of dust from the earth's surface. Regular washing down of the large population points was particularly well organized in Central and Southern Bulgaria. Camp sessions were cancelled in the mountains and the children's institutions and schools were ordered to keep the children indoors most of the time, in limiting games outdoors and the use of grassy areas. The rains which

fell during this period also contributed to the washing away of these radioactive particles.

Significant radioactivity of the green plant bulk required quick organizational and preventive measures. The most urgent was the question of preventing the direct elementary ingestion of radioactivity in human food. The season of the year predetermined the possibility of the consumption of a number of early vegetables and fruits and in inspecting these high radioactivity was established. This required that a number of these be banned such as lettuce, onions, spinach and so forth. After about 2 or 3 weeks, Bulgarplod [Bulgarian Fruit Trust] halted their purchase and prohibited their sale on the free market, in organizing a systematic study of the vegetables in all okrugs of the nation. Later on, consumption was permitted of cucumbers, tomatoes and radishes after thorough washing and peeling. This radiation protective measure was particularly important and its good organization played the main role in preventing the intake into the human organism of an entire cocktail of present radionuclides of which in the initial period the iodine 131 represented the main radiotoxic danger.

Aside from this, radioactive fallout was recorded on the leaves of trees, the above-ground part of root crops, berries and other early fruits. Research showed the contamination to be within the limits of acceptable rates and most of the crops were sold on the domestic and foreign market.

The Problem of Animals and Animal Products

The absence of fodder stalks from the previous year required the early inclusion of green fodder in the diet of the animals. These circumstances prevented the ubiquitous application of a particularly important protective measure, the feeding of the animals with old feed for a certain period. The situation predetermined the extension of the radioactivity problem to milk, a vital necessity, particularly for children, the elderly and the sick. A good organization was set up for the ubiquitous delivery and inspection of the milk received by the dairies in order to organize radiation protective measures in this area. For Sofia they inspected 40 supply lines daily and at the Serdika Dairy they established an around-the-clock system for the fresh milk and yoghurt being delivered to the trade network. This made it possible to prevent dangerous cow milk and the amount that did not meet the required conditions was processed into cheeses. As a result of the measures taken only in certain okrugs and then only on certain days did the radioactivity of cow milk insignificantly surpass the upper limit of the temporarily accepted rate. After 2 weeks, the level dropped to the rate accepted for children. At the beginning of June, as a result of the frequent half-life of radioactive iodine, the activity of the milk declined to within the limits of the new reduced maximally acceptable rate.

Because of the free ranging of sheep and goats, the use of mountainous terrain and the genetic features in the pasturing and feeding of sheep and goats, their milk was significantly contaminated with iodine 131, cesium-134 and -137 and strontium-89 and -90. It was essential to halt the consumption of milk from these animals and process it into cheeses using altered techniques guaranteeing maximum purification of the obtained products. As a result of

the complete decay of the short-lives radioactive iodine during the aging and curing of the produced batches and the redistribution of the remaining radionuclides in the production process, a significant reduction of these was achieved. Inspection of the batches prior to sale showed the significant effectiveness of the radiation protective measures taken in this area, with only a small portion of these having a radioactivity above the required rates. These were confiscated and additional conditions imposed on them before consumption by the public.

Particular attention was paid to milk destined for the production of children's food products. Batches of the milk-collection lines were employed with the lowest radionuclide content. Regular inspections were made on the prepared foods and those with more significant values were banned from consumption.

If we analyze the radiation protective measures for milk, it must be pointed out that the rising radiation situation was quickly mastered and in this manner the consumption of only radiation-safe milk was ensured and there were no economic losses from the wasting of cow, sheep and goat milk which was unfit in radiation terms. This was achieved due to the good organization of the sampling and delivery for inspection at specialized laboratories of the Agricultural Academy (SSA) and the prompt decisions of the staff and operations group under the Academy.

Protection of the Public

The radionuclide fallout was taken up basically by the vegetation developed at the moment and for this reason the radiobiological specialists from the SSA recommended two main measures as a particularly effective radiation protective measure. Consumption of early vegetables was halted and to a large degree the feed grasses were removed from the plots and temporary feeding of the producing animals started using last-year's feed. The use of green feed for extensive feeding of the animals and the preparation of meal and silage caused the extended remaining of radioactivity in the area and its slow reduction in certain of the more contaminated areas of the nation and the reaching of the upper limit in the accepted temporary rates. A rise in the amount of cesium radionuclides in lamb in certain places prevented its sale in the commodity stocks and for export. Regular inspection of the entire territory of the nation and the good organization established by the Veterinary Affairs DO [State Trust] and the Rodopa SO [Economic Trust] minimized the possibility of economic losses, as the batches containing radionuclides above certain rates were processed into meat products using methods guaranteeing a reduction beneath the maximum acceptable amounts.

For grains and other autumn agricultural crops, the accumulation of radionuclides in the used portion of them was insignificant and did not require the initiating of definite protective measures.

As a conclusion from the analysis made, one can point to certain particular features in the radioactive contamination which occurred. After the accident, only fission products were precipitated which corresponded to the composition of the employed nuclear fuel. The quantitative ratio of established

radionuclides was more favorable in radiation-hygiene terms. The quantity of cesium radioisotopes was greater in comparison with the strontium, with radionuclides that are indissolvable and unassimilable by the organism predominating in the radioactive mix. Likewise, a portion of the precipitated raionuclides is more water soluble and for this reason more rapidly penetrates deep in the soil layer. This causes their protracted inclusion in the biological chain and their circulation in nature. It can be accepted that the radioactive contamination and radiation load are relatively acceptable in radiation hygiene terms and during the past months one may not expect a direct radiobiological and radiotoxic effect on the public.

Chernobyl Monitoring Described

Sofia GRAZHDANSKA OTBRANA in Bulgarian Feb 87 p 10

[Article by Col Yordan Martinov: "Instructive Experience"]

[Text] During the night of 29-30 April 1986, the Okrug Military Directorate in Veliko Turnovo received instructions from the Bulgarian CD Staff to have the stations measure the radiation background continuously. Orders were immediately issued to the subordinate bodies. In order to guarantee the immediate and high-quality execution of the set task, the Okrug Military directorate set up an operations group which began to carry out the following measures: first, the introduction of standing duty by the operations group for receiving, processing and sending off information and ready to respond immediately to the new instructions and orders; secondly, varifying with a monitoring device the readings of the stations monitoring the radiation and the work method of the officials carrying out the measurement; thirdly, providing reserve devices and power sources in order to prevent a breakdown in the process of carrying out the task.

According to the instructions given, the radiometric laboratories at the Veterinary Institute in Veliko Turnovo and the Republika KZ [unidentified plant] in Svishtov. These activities were carried out during the night, but due to the activeness of the VO I GO [air raid and civil defense] sections and the leaders of the installations work had started immediately in taking samples and analyzing them. Cooperation was organized with the okrug CD services and these began to receive instructions from the central departments and from the republic services. Measurements followed continuously and additional ones were made when their values appeared unrealistic (at the beginning certain persons on duty made errors in handling the devices). The radiometric laboratories were monitored daily and their personnel showed a good knowledge of their functional duties. For monitoring the contamination of milk, samples were taken simultaneously at the oncological department of the okrug hospital. The results of the CD laboratories and the hospital coincided fully.

We organized the delivery of samples from the Yovkovtsi Reservoir for analysis at the Hydrology and Meteorology Laboratory in Pleven and the meat and milk at the KhEI [Hygiene Epidemiological Institute] in Ruse. In carrying out this task, the activities of the section were closely coordinated with the okrug V i K [Water Supply and Sewers] Service, the Medical Service and others. The

operations group also called in a number of leaders and specialists from the OAPS [United Agroindustrial Union], the KhEI, the DVSK [State Veterinary Sanitary Committee], Rodopa Dairy Industry, V i K, Bulgarplod [Bulgarian Fruit Trust] and others.

Regardless of the established ordered organization in the work we also encountered certain difficulties. These come down to the following:

a) For measuring radioactive contamination of food products, fodder and water, the samples were dispatched to specialized laboratories in other okrugs and in this manner there was delay in obtaining results and responding to the situation.

b) The KhEI, DVSK and OVU [Okrug Military Directorate] did not possess the necessary standards for radioactive contamination in peacetime and at the initial stage this impeded effective activities by the district leadership.

c) The people on duty at the obshtina people's councils who made the measurements with the devices did not always observe the operating rules. Some of them were not sufficiently trained due to personnel turnover or due to the fact that in individual places duty during the day was stood by employees from the Obshtina People's Council and not by permanent regular duty personnel.

d) In the initial moment we did not strictly consider the precise place of measurement, the location of the instrument sonde or the monitoring of the power sources and because of this in certain instances unrealistic measurements were obtained and they had to be repeated.

e) In the initial stage it was allowed to take the samples for analyzing the water, meat, milk and vegetables from different places and this impeded a compilation of the picture of the movement of radioactive contamination and after this required the strict determination of the places, the time and the method of taking the sample.

In considering the difficulties and weaknesses permitted, during the second stage we found the correct solutions for carrying out the set tasks. The work results showed that the leadership, the operational bodies and the forces of Civil Defense in the district are prepared to act to overcome the consequences of occurring elevated radiation, they know their duties and have largely mastered the required knowledge, skills and abilities for taking correct decisions and carrying out effective actions.

10272
CSO: 5100/3010

ALFONSIN PRESENTS NUCLEAR REPORT TO CONGRESS

PY041927 Buenos Aires DYN in Spanish 1226 GMT 1 May 87

[Text] Buenos Aires, 1 May (DYN) -- A National Commission for Atomic Energy [CNEA] report states that the country's prospects for exporting nuclear technology are improving, confirming that the goal is to ensure national independence in the fuel cycle and that efforts will be made to maintain the timetables of current projects "within the limitations imposed by available credits."

These concepts are mentioned in a reporton nuclear matters that President Alfonsin today presented to Congress. the report states that "projections to meet the commitments assumed within the current economic situation have been included for fiscal year 1987 in the budget bill sent to the national Congress." The report adds that the budget allocated to the CNEA in 1986 was sufficient "to ensure the output of nuclear electric power, to continue priority research and development programs, and to promote the use nucelar energy by products for the public well-being."

In addition, efforts were made "to improve personnel and the environment protection, to reactivate the work in the heavy-water industrial plant, to continue the work at the Peru Atomic Center, which is expected to be completed within 16 to 22 months, and to complete negotiations with the main contractors of the Atucha II nuclear power plant."

According to the presidential report, "the promotion of the use of nuclear-energy by-products -- such as radioisotopes -- for the public well-being has also been emphasized."

According to the report, "a new phase of the basic engineering design of a center for radioisotopes production has begun. This will produce sealed Cobalt-60 sources to be used in medicine and industry, a reactor to produce primary radioisotopes, a laboratory to process radioisotopes, and a cyclotron to produce radioisotopes, and a cyclotron to produce radioisotopes for medical use."

"The first projects will be built in Cordoba Province and the last project, which will complement the first projects, will be built in Buenos Aires Province."

President Alfonsin pointed out that "the construction of the Hospital of Nuclear Medicine of Mendoza has begun hoping to achieve better training for professional physicians specializing in the nuclear field."

The report states that "the national goal of ensuring the independence of the fuel cycle has been confirmed and that, efforts toward the production of all the basic nuclear materials have been increased."

Concerning the basic goals for the fiscal year 1987, the government deems it extremely important "to ensure the production of nuclear electric power, to promote the capability to export nuclear technology, and to continue activities related to protection of the people and their environment."

/9274
CSO: 5100/2090

BRIEFS

WORKERS OCCUPY NUCLEAR PLANT--Buenos Aires, 4 May (DYN)--Labor sources have reported that 600 members of the construction workers union of Zarate, Buenos Aires Province, today peacefully occupied the construction site of the Atucha II nuclear plant, to protest the suspension of 320 workers. The decision to occupy the building came as a reaction to a decision by the Obras Civiles de Atucha II Consortium to suspend 320 workers for 15 days, beginning today. The source said that the suspension was caused by the payment delay incurred by the National Atomic Energy Commission (CNEA), which employs the consortium. In recent months, construction labor leaders have talked with Guillermo Tello Rosas, chairman of the Energy and Fuel Committee of the Chamber of Deputies, in an effort to prevent the CNEA payment delay from causing a suspension of work. VOCRA [Construction Workers Union of the Argentine Republic] Secretary General Juan Farias has been briefed on the situation and has promised to seek ways to solve the problem. Representatives of the VOCRA branch of Zarate have come to Buenos Aires to meet with Labor Ministry officials. [Text] [Buenos Aires Domestic Service in Spanish 0200 GMT 5 May 87 PY] /9274

CSO: 5100/2090

NEWSPAPER COMMENTS ON PARALLEL NUCLEAR PROGRAM

Bomb Development Charged

PY301843 Sao Paulo VEJA in Portuguese 22 Apr 87 pp 92-97

[Text] For almost a decade now, an immense octopus, with its head hidden under a military cap, has been clandestinely moving around the country, awakening great fear in some people and delight in others. It is called the parallel nuclear program. This animal has its tentacles around more than 3,000 people, including scientists, technicians and other employees who live to serve it, and are well paid to do so. It carries in its womb dozens of large industries, which it employs. It has a voracious appetite consuming between $1 billion to $3 billion a year, perhaps more. It is also a deep-water mollusk: Appropriations for it are not listed in the books of the Finance Ministry, however, all the money it spends comes out of the tax payers' pockets. Its bank accounts have picturesque names like Delta Three, Delta Four, and God knows what other names -- clandestine, of course.

Reliable sources indicate that the organization engages in smuggling whenever it wants something difficult to obtain. It is also known that it has often bought industrial secrets from international spy rings under the pretext of pushing for a quicker development of nuclear research in Brazil. In conclusion, the most serious aspect is that the parallel nuclear program, which was an offspring of the warmongering dreams of the military presidents, has continued without noticeable modifications during the civil administration of President Jose Sarney. As was the case before, it now seems to be bent on discovering the explosive formula that will allow Brazil to manufacture its first atomic bomb within a few years. "We would only need to invest more money, conduct further research, and make a political decision in that direction," says the director of the National Commission for Nuclear Energy (CNEN), which is the civilian front organization for the parallel program.

Invisible channels

Just the mention of the Brazilian atomic bomb immediately splits opinions. There are those who shudder at the idea that the country might have the bomb, and use it for the wrong purpose, and there are those who believe it to be indispensable for reaffirming the nation's position. However, the main issue in Brazil today is not the ethical implication of the bomb. Neither is it important to first discuss what the bomb will blow up, something that will inevitably have to be faced in the future. No one yet knows when or where it is going to explode. Nevertheless, the atomic bomb has already exploded in the midst of public accounts, with calamitous results. The operation is secret, and the bankrupt country that all Brazilians want to see emerge from the

economic quagmire, sustains a program that swallows dollars through invisible channels not controlled by anyone outside the framework of the nuclear program.

One year ago, when the government wanted to centralize the accounting of state enterprises, the Central Bank board of directors was surprised by the discovery of an unexpected pool of quicksand in the National Treasury. "Some $200 to $300 million were taken out of foreign accounts in minutes right before our eyes," a former bank director said. The parallel program had an account in Rio de Janeiro, the Delta Three, as well as a clandestine account at the Pinheiros branch of the Bank of Brazil.

When authorities tried to find out who the account holder was, nuclear engineer Rex Nazareth Alves, president of the CNEN, and Colonel Carlos Lemos de Campos, one of his assistants, showed up in Rio de Janeiro. In Sao Paulo, the Delta Four account was in the name of Captain Marcos Alberto Barbosa Bonaiser and Admiral Athon Luiz Pinheiro da Silva. Rex Nazareth admitted that "the two accounts have changed names and continue to operate," adding that "these accounts must be kept secret." Actually, there are other accounts which should be kept secrets.

A former director of the Institute for Nuclear and Energy Research (IPEN) in Sao Paulo said last week that he knew of people who are receiving money from the secret accounts Delta One and Delta Two. It is possible to speculate then, that there could be a Delta Five, a Delta Six and so forth. Furthermore, one could be tempted to imagine that, given the discovery of an account called Delta, which is the fourth letter of the Greek alphabet, there could have been predecessors: Alfa, Beta, and Gamma.

Second Set of Books

Why is it necessary to disguise this accounting system? The Brazilian nuclear program is classified, as in other countries, including the United States. However, U.S. classified issues are discussed in Congress during closed doors sessions. In Brazil, it is more than classified: There is a parallel secret accounting system which spends the contributor's money, somewhat akin to a second set of books that registers payments to a large network of employees, and fattens the accounts of the companies that develop the technology for the nuclear program. Since the project is secret, these companies get the work without having to go through the public bid process.

In conclusion, the expenses of this gigantic program may be greater than so far estimated, even by the most optimistic. According to Ramayana Gazzinelli, president of the Brazilian Physics Society and professor at the Minas Gerais Federal University, just two of the projects publicly acknowledged by the program -- two uranium enrichment projects -- will cost $1.5 and 2 billion respectively. "It is a stupidly expensive investment," the professor said, disagreeing with the methods of uranium enrichment used by the parallel program. The only thing the Brazilian scientists who work on the parallel program can discuss is the visible part of the nuclear iceberg. They must remain quiet about their own part, probably the biggest one, hidden out of sight.

Official Program

The parallel program intends to create a broad range of technological openings in different fields, which will include agriculture, health, and electrical power. However, a nuclear mushroom can be seen in the background. "We do not need a bomb now, because there are no foreign enemies in sight," said former Navy Minister Admiral Maximiano da Fonseca. Fonseca has closely followed the development of the nuclear program. "We need to learn the technology to be able to build a bomb if needed," added Fonseca. Among Brazilian businessmen, many of them defend the idea of building a bomb. "Brazil must make an effort to master this stage," Antonio Emirio de Moraes has

said. Moraes, owner of the Botorantim Corporation, was candidate for Sao Paulo governor during the last elections. Even among scientists -- a group of people from whom opposition to any military initiative is generally expected -- there are people who approve of building a bomb. "With a bomb, Brazil will greatly increase its negotiating power on the international scene," said physist Marcelo Damy de Souza. Damy de Souza is a former CNEN president, and currently a professor in the Sao Paulo PUC [Pontificial Catholic University], as well as a respected national expert in his field.

Brazilian military men, like those of any other country, agree on one thing: they defend nuclear weapons. By principle, they are all against them, but why not learn how to build them because they may become necessary some day? "It is not our objective to build atomic bombs, but with the training we are getting we will be able to build them," General Haroldo Erichsen da Fonseca, Army secretary of science and technology, said recently. Like this, war can borrow one of Vinicious de Moraes' [famous Brazilian poet] ironical definitions of paternity: Children? It is better not to have them. But how does one know this if one does not have them first?

The desire for obtaining national training in the nuclear field is the force that is pushing the parallel nuclear program, ever since it was born to its secret, speedthrift career, free from any legal control. It did not take long for the scientists and military men to discover that they could expect little in this field once the agreement with the FRG -- the "official program" -- was signed in 1975. It was then that it was decided to create the octupus: a national, complete, underground program that, according to the hopes of its sponsors, would unveil all the atom's secrets to Brazilians.

Several decisive steps have been taken in that direction since then. Four years ago Navy researchers were able to produce a small quantity of plutonium -- the bomb's main raw material -- at the IPEN, which is located on the grounds of the University of Sao Paulo. Four months before that technological achievement, the IPEN was under the jurisdiction of the government of Sao Paulo State. When the 1982 state elections were approaching and the SNI [National Service for Intelligence] predicted the victory of Senator Franco Montoro, a center-leftist politician, General Danilo Venturini, chief of the Military Household of the Joao Figueiredo administration, through negotiations held in Brazilia, was able to bring the IPEN under the jurisdiction of the CNEN, and through this organization into the hands of the military men where it will stay for the next 30 years according to the agreement made by Venturini. The military men did not want to run the risk of handing over one of the most important nuclear research centers of the country to the government of the PMDB [Brazilian Democratic Mobilization Party] especially on the eve of the production of plutonium by IPEN.

In Ipero, Sao Paulo State, the Navy is building gigantic installations to develop reactors for nuclear submarines. "We are going to make a nuclear submarine, not a nuclear bomb," explained Navy Minister Admiral Henrique Saboya. However, anyone who is capable of making a submarine reactor will refrain from making a bomb only if he chooses. "Just a bit more effort is needed," said physicist Marcelo Damy. Another laboratory very much involved in the nuclear program is the Army Technological Center in Restinga de Marambaia, near Rio de Janeiro. According to a PMDB senator, research is being conducted there to build a bomb. Bombs are useless without missiles to carry them. Hence, the Army and Navy are developing missiles. Will it be necessary to have grounds for testing the bombs? It should be known that the well, discovered last year in the Cachimbo Air Base, southern Para State, has all the characteristics of a site for testing nuclear bombs. This is not the only one existing in the country. "There are others spread around the Amazon," said Rex Nazareth Alves who is so enthusiastic that he faces the nuclear challenge with the spirit of a football fan who is looking at

the national team on its way to winning the cup. He said: "To talk about this matter, it is necessary to wear the green and yellow jersey."

Stages Fulfilled

If Brazil ultimately wants to explode a nuclear bomb it must follow some steps, whose secrets are already known to Brazil. The country has the fifth largest world uranium reserve. Therefore, it has the radioactive material so useful for producing electricity, as well as for making bombs. Brazilian researchers already know how to purify uranium at least at the laboratory scale and how to transform the uranium from ore to fuel. In its natural form uranium has only 0.7 percent of the necessary radioactive material for a nuclear reactor, and it is necessary to increase its concentration to 3 percent. Rex Nazareth said. "We are overcoming that stage."

It is already possible to activate a reactor with uranium gathered in our own back yard or to be more exact, in the deposits of Pocos de Caldas in Minas Gerais.
When uranium is burned, the reactors produce plutonium as a by-product of the reaction, and from this a bomb can be made. In a reactor such as Angra I, sold to Brazil by Westinghouse, the fuel is produced abroad and the plutonium is then washed and sent back under the control of the IAEA. This is an organization which, among other functions, tries to prevent the dissemination of nuclear weapons. On the contrary, with a reactor made in Brazil and fed with national uranium the uranium remains here, and no one can demand its return.

"Officials deny they want the bomb but they are collecting all the necessary ingredients to fill the prescription," said engineer and nuclear physicist Jose Zatz, general manager of the Agency for the Application of Energy of the State of Sao Paulo.

"If someone buys pork fat, port sausage, tongue, pork tail, pork ears, black beans, and broccoli, how can he say that he is not making the Brazilian dish named feijoada?" said Katz. He added: "It is reasonable, then, to expect that one day someone will put all the ingredients in the same pot."

The Brazilian bomb can be defended or attacked with equally logical arguments. The same thing cannot be said about the origin of the nuclear program, which slid underground when the military decided it was a matter that should be under their jurisdiction. It is more than reasonable that the prestige of the National Security Council should be enhanced by giving it more important missions during a long-standing military regime. It is equally reasonable that the nuclear issue, because of its strategic importance, was one of the issues that most worried the military during that period. The problem is to see that organization function in the same manner under a civilian regime. Today there is a National Security Council that has not been touched. An underground parallel program exists today just as it did before.

Physicist Enio Candotti, director of the Brazilian Society for the Advancement of Sciences (SBPC), says: "The Brazilian nuclear program is not a matter to be discussed just by a tiny group whose ideas are unknown to anyone. It is intolerable that such a project is being secretly managed." For those who are advocating nuclear programs, secrecy is a necessary evil. For example, General Rubens Bayma Denys, chief of the Military Household of the Presidency of the Republic, understands that secrecy is essential in a project like the parallel nuclear program. He is not even surprised by the existence of irregular bank accounts. On the contrary, Bayma Denys looks at them benignly, perhaps because he is responsible for one of them -- Delta Three. In an official note sent last February to the Federal Police, who innocently investigated the account as a criminal case, Gen Bayma Denys reported that the Delta Three account actually belongs to the National Security Council.

The situation, which seems natural to Bayma Denys, is considered ridiculous by Deputy Amaury Muller (Democratic Workers Party -- Rio Grande do Sul State). "It is now known that Gen Bayma Denys has used the Delta Three funds in the overnight [preceding work in English] money market for 5 years," said the deputy. It was revealed that the profits of the operation were fully added to the secret account and the people involved did not acquire any of the money. This puts them beyond suspicion but does not improve the deputy's concept concerning this type of operation. "What matters is that there was an irregular, illegal, and illegitimate operation, using Treasury funds in the financial market," charged Amaury Muller.

With the death in 1986 of Rio de Janeiro attorney Antonio Galotti, the history of the influence of the "Account Two" of the Light Company -- a Canadian company that was the concessionary of the electric power supply in Rio de Janeiro and Sao Paulo, and which administered trolley-car and telephone companies -- in sponsoring the Brazilian coups was lost, perhaps for ever. Today, huge amounts of money are circulating between the parallel nuclear program and the military industry. That unaccounted money -- $ 1 million can be quite easily withdrawn -- is in the drawers of retired military men who, quite often, were involved in the repressive apparatus of the defunct 1964 regime. After being made federal police chief for having supported the Tancredo Neves nomination, reserve Colonel Luis de Alencar Araripe, one of the representatives of the group of undisciplined people who called themselves hardliners under the Castelo Branco administration, is now with the SNI [National Service for Intelligence] and is one of the leading and most qualified brains in the nuclear plottings.

General Confucio Danton de Paula Avelino, a very close collaborator of the DOI [Department of Domestic Operations-CODI [Internal Defense Operations Center] in Sao Paulo in the 1970's and a former Army Intelligence Center (CIEX) chief when the CIEX operated as an organization that plotted against a [political] opening, now is an adviser to the Avibras [Brazilian Aerospace Industry] Executive Board. General Jose Luiz Coelho Netto, CIEX chief Milton Tavares de Souza's right-hand-man during the period of strongest repression, is now acting as a promoter of the national military industry. It is estimated that the ideological purge conducted among Brazilian physicists in the 1960's caused a 20-year set back in the country's nuclear development. Physicist Jair Carlos Mello, one of the victims of that purge and a professor at the Federal University of Minas Gerais (UFMG), recalls that he and his companions in the so-called Throium Group more than 2 decades ago advocated the adoption of an independent policy for the nuclear sector. His group was simply dissolved as a result of an authoritarian whim. It is difficult to determine the cost, in dollars or in time, of the entry of colonels and friends of colonels in that operation through SNI.

With a view toward competition with Argentina, which has made more progress than Brazil in nuclear research, the advisers of the parallel program are trying to hasten the steps in a process that theoretically is almost commonplace but that practically presents significant challenges. Everything is known concerning radioactivity; the problem is harnessing it. Uranium is a chemical element whose atmos emit particles called neutrons at high speeds. Enriched by man, the uranium emits these neutrons at a concentrated rate. In this concentrated bombardment inside a reactor, each neutron emitted by an atom collides against another atom, splitting its nucleus and releasing new neutrons that will then split new atoms at an increasing rate. This process is called a chain reaction and, as is known, produces huge quantities of energy. A total of 0.5 kg of enriched uranium supplies as much energy as 3 millions tons of coal.

Any good student knows this chapter in physics. What the scientists and technicians of the parallel program are now trying to do is implement this chapter in practical life, something that is fairly complicated, as can be seen from the Angra I nuclear power plant, which was built in 1971 and has experienced so many breakdowns since then that

it cannot be truly said it has been put into operation. So frequent are the breakdowns at the Angra I nuclear power plant and the accidents that are plaguing it, like the fire that destroyed one of its warehouses in 1977, that Brazilian military men have suspected sabotage.

The scientists now trying to master the uranium cycle need to build equipment to enrich the mineral, something they are already doing, and must develop metallic alloys to stop the chain reaction in a closed container and build equipment to control the process. The bomb requires all this on a much more refined scale, as well as many other things. To begin with, the bomb is a container housing a dormant atomic reaction and needs to be sufficiently safe to endure warehousing or transportation without detonating. It is not known if Brazil will try to build bombs after building reactors.

But the recent history of nuclear development in countries such as India, the PRC, Pakistan, and Israel suggests that such a possibility should always be admitted. At any rate, the intention to build an explosive device is always denied -- until it is ready.

Program Funding Explained

PY081436 Sao Paulo FOLHA DE SAO PAULO in Portuguese 7 May 87 p A8

[Text] CNEN [National Nuclear Energy Commission] Chairman Rex Nazareth yesterday told the Constituent Assembly Subcommission on Political Rights, Collective Rights, and Guarantees, that funds for the parallel nuclear program are funished by the National Security Council, which keeps a bank account. He said these funds are invested in the "overnight" open market by the Bank of Brazil. The CNEN chairman told congressmen that these operations have have approved and audited by the Federal Court of Audits. Only last year's investments have yet to be audited by this court, but this should probably be done by next June. According to Rex Nazareth, there is nothing illegal about the parallel nuclear program because Decree-Law 200, promulgated in 1967, provides for confidential expenditure by government agencies.

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CSO: 5100/2092

NUCLEBRAS, SEPLAN TO FORMULATE FINANCIAL PLAN FOR PROGRAM

Brasilia CORREIO BRASILIENSE in Portuguese 23 Mar 87 p 9

[Text] The next company to be subjected to a financial overhaul, after the Federal Railroads, Eletrobras and Siderbras, will be Nuclebras. Financial experts from the company are working with Seplan staff to put the finishing touches on the Plan for the Recovery of the Nuclear Power Sector.

The program will be similar to the one developed for Eletrobras and will identify, on a multiyear basis, sources of funds and projects to be carried out under the Brazilian Nuclear Program, PNB. It will show federal treasury and government bank contributions of internal funds toward the capitalization of Nuclebras, and will constitute the primary tool for making feasible a resumption of financial support for the PNB by German banks.

The solution that was reached can be symbolized by a relay race in which the nuclear power plant construction program, aimed at creating and implanting the technology for complete mastery of the process of building those power plants, and the effort to master the nuclear fuel cycle will advance gradually.

Resumption of the nuclear program at a level of activity compatible with the complexity of the technology, industrial, and safety considerations will require an investment of at least $2.7 billion between now and 1995. That figure would include sums for completion of the Angra II and III power plants, by 1989, Brazil will have invested about 70 percent of this amount.

By setting up a multiyear timetable for disbursements that projects future sources and allocations of funds. Nuclebras should be able to cut its financial costs and manage them better. Of the $4.7 billion spent on the Nuclear Program so far, 1.4 billion went for financial costs.

In contrast with other government-owned companies, which have major sources of funds available to them--such as the "obligatory loans" to Eletrobras and the Tax on Fuels and Lubricants--Nuclebras has never had any resources of its own to invest. Nor does it sell any product, such as steel, electricity, or petroleum by-products, to support itself. The balance sheet for last year showed the authorized capital of Nuclebras to be 2 billion cruzados, while it owed 36.3 billion cruzados in loans and other financing. The recovery plan seeks to modify these parameters which--for any private company,

would mean bankruptcy--by increasing the debt/capital ratio. All new funds will enter in the form of contributions to capital, part from the federal government and part from the German creditors.

As for the Nuclear Program itself, the phase of borrowing against the future ended in August, 1986, when President Sarney approved the joint statement of justification drawn up by Aureliano Chaves, Minister of Mines and Energy, and Bayma Denys, chief of the military household, outlining the main tenets of the Brazilian Nuclear Program.

At present, construction work on Angra III, including the building housing the reactor and associated structures, is 80 percent complete. The next phase is that of equipment assembly and installation.

The drastic reduction in Nuclebras investments since 1979 has led to a some conversions of its factories, whose high capacity is now being put to use in other vital areas. For example, the Fuel Elements Factory, ready since 1982, has signed a contract with Embraer to supply fuel tanks for the Tucano and the first Brazilian jet plane, the AMX. Nuclep, a facility where heavy equipment is manufactured for the reactors, has signed a contract with the Navy Arsenal in Rio de Janeiro to make to hulls for three Brazilian submarines that will be built in cooperation with Germany.

12830/12951
CSO: 5100/2085

ENVOY TO UN CONFERENCE SAYS PROGRAM TO BE CONTINUED

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 3 Apr 87 p 5

[Report by Assis Moreira]

[Text] Geneva--"Brazil is not going to change its nuclear program because of the obstacles to obtaining international cooperation set up by the industrial countries that hold the technology," Ambassador Carlos Augusto de Proenca Rosa, head of the Brazilian delegation to the United Nations Conference on International Cooperation in the Peaceful Use of Nuclear Enegy, being held in Geneva, stated yesterday.

"With or without the help of the developed countries, Brazil and other developing nations are going to continue to intensify their research in order to acquire nuclear technology, because access to it is one of our basic needs," the ambassador stressed in an interview at the UN. He was speaking as chairman of the Group of 77 at the conference, in response to a request from the international press.

In the envoy's opinion, the two-week conference has so far been "entirely inadequate." This leaves the impression that there are insurmountable obstacles to the implementation of some sort of international cooperation. There are disagreements even between [sic] the two groups which oppose each other (The technological haves and have-nots). "Negotiation of the principles of cooperation in the nuclear field is particularly difficult because it touches each nation's foreign policy," he explained.

The Brazilian ambassador enumerated a series of difficulties and restrictions encountered by the developing countries when they seek to acquire nuclear technology, equipment, and materials for peaceful purposes. These problems stem from prerequisites established by the industrialized countries, who cite the need to control proliferation.

Ambassador Proenca Rosa noted that, under the pretext of preventing horizontal proliferation, some of the countries that have the technology are-unilaterally or with other countries--impossing additional restrictive measures beyond those provided for in the Treaty of Tlatelolco and the Nuclear Nonproliferation Treaty. Brazil has not signed the latter treaty, he explained, because it cannot accept a text that establisheds differentials

in the rights and duties of nations. Moreover, the countries who have signed the treaty have not obtained any cooperation, nor has the arms race slowed down. The envoy said, once again, that the danger of nuclear proliferation lies in the countries that manufacture such weapons--not with the ones that do not have the technology.

Stressing the importance of using nuclear energy for peaceful purposes--medicine, agriculture, hydrology, etc.--the ambassador illustrated the inequality between the developed countries and the developing countries in the nuclear area by noting that the latter have only 15 reactors out of the 374 that are operating in various parts of the world. This means they have only 4 percent of the total, according to data from the International Atomic Energy Agency.

Lastly, Ambassador Proenca Rosa said that the obstacles set up by the developed countries are a means of blocking access to nuclear technolgy by the developing nations. He recalls that today it is difficult to export even conventional equipment, such as computers and welders. The conclusion reached by the Brazilian representative is that, judging by the evidence demonstrated so far at the Geneva conference, the developing nations "will have to stand on their own two feet in this area."

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CSO: 5100/2085

BRIEFS

POSSIBLE ANGRA III SITE IN NORTHEAST--The Angra III nuclear power plant (the nation's third and the second under the Brazil-Germany Nuclear Agreement) might be transferred to the northeast if the government decides that its energy will not be needed in the southeast--specifically, in Rio de Janeiro. At least this was the suggestion made yesterday by David Simon, a Nuclebras director, in a speech on the nuclear energy sector given at the Seminar on the Resumption of Public Investments at the Clube de Engenharia. According to Simon, that would be one way to reduce the losses for Brazil. The contracts for the power plant have already been signed with Kraftwerk-Union (KWU), a Germany company that is participating in the agreement, and most of the equipment--$1 billion worth--has already been bought and is in storage at Itaguai, Rio de Janeiro State. If Eletrobras believes that Angra III is not essential to Rio, then let it put it where it is needed--perhaps in the northeast, said Simon. The warranties on the equipment have expired and Nuclebras is renewing them, reported the director, who did not say how much that would cost. [Text] [Rio de Janeiro O GLOBO in Portuguese 8 Apr 87 p 17] 12830

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CSO: 5100/2085

MINISTER SAYS NO CURRENT PLANS FOR INDIAN NUCLEAR BOMB

New Delhi PATRIOT in English 14 Mar 87 p 5

[Text] India has no intention to go in for nuclear bomb at this point of time and it is hoped the circumstances will not force the country to deviate from the declared path.

Stating this in the Lok Sabha on Friday Minister of State for External Affairs Eduardo Faleiro told Dr G S Rajhans and Mr H N Gowda during question hour that there was nothing very new in the disclosures made in an interview by Dr A Q Khan, the Pakistani scientist, regarding Pakistan possessing a nuclear bomb. India has been receiving information from various sources regarding Pakistan's nuclear dimension.

Mr Faleiro declared in this context that the country's defence was paramount and the security environment was under constant review. So far as India's stand on nuclear disarmament was concerned it was consistent, the minister said.

Answering a supplementary Mr Faleiro said that India had taken up the matter of dilution of the Symington agreement in the context of Pakistan acquiring nuclear bomb. He said whatever steps were possible diplomatically India was taking it. "We have taken up this with the US and the US Congressmen", the minister said.

Mr Faleiro further said though India was not satisfied with the US response to the Pak nuclear programme the issue would continue to be pursued. The US administration could exercise a lot of influence with the Pakistan government, he said.

When Mr Madhu Dandavate of the Janata sought to know from the minister in a supplementary whether under article 78 of the Constitution the Commander-in-Chief of the Armed Forces was informed of the recent developments on the Indo-Pak border before the matter was leaked to the press, Speaker Balram Jakhar intervened and ruled that he would not allow any reference to the name of the Commander-in-Chief to be made in the House.

Mr Faleiro said that the timely action taken by India following large-scale amassing of Pak troops on the border had helped difuse the situation.

He said that the US administration had a great deal of leverage and could influence the Pakistan government. "We are not satisfied with what they have done so far and we will continue to pursue them", he said.

Mr Faleiro who gave details of the troop movement following amassing of troops by Pakistan across the border said the timely action took by the Indian Government diplomatically had helped to difuse the situation. "The situation as of now stands diffused", he said.

Tension on the Indo-Pakistan border had been substantially reduced following two rounds of talks which were held at India's initiative from 31 January to 4 February, 1987 and 27 February to 2 March, 1987 respectively.

These consultations provided for substantial withdrawal of forces of both sides in certain sectors. A third round of talks was to be held in New Delhi at a mutually convenient date.

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CSO: 5150/0117

OBJECTIONS TO SIGNING NONPROLIFERATION PACT REITERATED

Calcutta THE STATESMAN in English 25 Mar 87 p 9

[Text]

NEW DELHI, March 24.—Despite various statements from diverse sources in the USA pleading, in effect, for a condonation of Pakistan's nuclear-weapon programmes, and hinting at a changed scenario if only India were to sign the nuclear non-proliferation treaty, India is understood to have again made it clear through diplomatic channels that it had no intention of joining the NPT club right now.

The suggestion for international inspection of its nuclear facilities (on a reciprocal basis with Pakistan) is unacceptable to India. For, apart from other objections, while India's nuclear programme is handled by the Atomic Energy Commission, Pakistan's has a heavy military imprint on it.

India's objection to signing the treaty, it is pointed out, is not born of regional considerations but is based on the argument that the treaty, with its component of haves and have-nots, is patently discriminatory.

Thus, India, according to informed sources, is not going to be "hustled" into signing the treaty merely because of reports about Pakistan having a nuclear bomb or having the capability of producing one.

Recent reports about Pakistan's nuclear weapons programme are seen here as part of a pattern woven over the last several months calculated to prepare the U.S. public opinion of a nuclear Pakistan. Seen in this light, according to the sources, it comes as no surprise that there should now be a move in certain quarters in the USA to paint Israel and Pakistan with the same brush.

The argument is: If the USA can turn a blind eye to the nuclear intentions of its ally on the western flank, Israel, how can it view the programme of its eastern ally, Pakistan, different?

It is felt that some of the U.S. Congressmen are trying to impose impossible conditions on India. Nobody in the U.S. Congress has talked of India carrying on a nuclear-weapons programme but the fingers are pointed at Pakistan. Even so, an effort is seriously being made to equate the two on the aid plan for Pakistan, if carried eventually

/13104
CSO: 5150/0123

PRESIDENT WARNS INDIA CAN MAKE NUCLEAR BOMB

Bombay THE TIMES OF INDIA in English 30 Mar 87 p 1

[Text] THE President, Mr. Zail Singh, said today that India too could make a nuclear bomb, if needed and that the neighbouring countries trying to destabilise this nation should take note of it.

Speaking at a seminar on Jain society's role in ushering in world peace at the FICCI auditorium here, he, however, underlined that India believed in non-violence and would make all efforts to continue the tradition.

Regretting the present trend of people indulging in violence more than ever before, the President said that Jainism being the oldest ideology had played a great role in preaching peace among various communities. He said that Jainism, being rooted in tradition, could not reach outside India until recently when Acharya Sushil Muni took the responsibility to spread the messages of peace on a global platform.

The establishment of the Arhat Sangh, a voluntary organisation to combat national and international terrorism, violence and communalism, was announced at the seminar. It would initially be led by 51 "life donors" who have dedicated their lives to work for combating violence and terrorism.

According to Acharya Sushil Kumar, it was aimed at having at least 100,000 "life donors" or "jiwan dans" all over the world to carry on a global campaign against terrorism, violence and extremism with the help of religious leaders and laymen belonging to all creeds.

The seminar organised to mark the 60th birthday of the Acharya by the Arhat Sangh, was attended, among others, by Nagaraj Muni, Sadhwa Maharaj, Mr. Johrimal Parikh and Mr. Dal Chand, MP.

Acharya Sushil, who is at present preaching peace among the people in the West, urged everybody, irrespective of caste and creed, to join him and strengthen his hans to ease the sufferings of people. He felt that wherever there was an attempt or will to spread peace there must be some root of Jainism.

He urged the President to solve the burning problem of Punjab. He said, "So long as you do not settle the Punjab issue, you cannot leave your seat."

The Acharya said the Arhat Sangh was not a separate group but just another "ideology having its root very much in Jainism." Three resolutions were passed by the meeting in view of the increasing membership of the sangh at the international level.

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CSO: 5150/0125

DEFENSE STUDIES INSTITUTE COMPILES KHAN STATEMENTS

Bombay THE TIMES OF INDIA in English 16 Mar 87 p 9

[Text] NEW DELHI, March 15 (UNI).

IN his various statements and interviews in the past three years, the Pakistani nuclear scientist, Dr. Abdul Qadir Khan, has always claimed that his country has the capability of producing a nuclear bomb.

These statements and interviews have been compiled in a booklet by the Institute of Defence Studies and Analyses here in the wake of the controversy generated by Dr. Khan's interview to an Indian journalist in which he is reported to have claimed that "Pakistan has the bomb".

In these statements Dr. Khan does not hide his communal hatred against the West (although his wife is Dutch), India and the Jews.

In his interview to the Urdu daily, "Nawa-i-Waqt", in February 1984, he had said: "All western countries including Israel are not only the enemies of Pakistan but in fact of Islam." And opposition to Pakistan's nuclear programme by Indian and the Western press was because of their "hostility to Islam".

In that interview Dr. Khan had made the historic statement that "by the grace of God we have left India behind by many years in uranium enrichment" and if a political decision was taken to fabricate an atom bomb "we would not disappoint the nation".

Later in April 1984, he wrote in a defence journal of Karachi: "Purely from theoretical and academic point of view when we are capable of enrichment to three per cent which is the reactor grade, nothing stands in our way technically to stop us from enriching to 90 per cent which is the weapons grade."

Again, in his interview to the Urdu weekly, "Hurmat" of Islamabad in 1985, he said: "The task which was accomplished by the United States 40 years ago, and which India had achieved 11 years ago (reference to Pokhran explosion) is not so difficult and not at all beyond our reach."

In the meantime, Pakistan continues to buzz with the controversy about Dr. Khan's interview to the Indian journalist. According to the Karachi daily "Dawn" there are two points of view about this interview among the members of the national assembly. Some members call Dr. Khan a patriot par excellence, "who in one swipe brought the bomb out of purdah, restored the sagging morale of the nation and offset threats from outside".

Others condemn him as a "technical pedant" whose utterances in public might compound Pakistan's problems in the future in the matter of aid from the United States. A Jamaat-i-Islami member of the national assembly, Mr. Liaquat Baluch, has alleged that the Pakistani government had "deliberately arranged the interview with the Indian journalist.

BENAZIR'S STAND (PTI from Islamabad): Ms. Benazir Bhutto, co-chairperson of the Pakistan People's Party, said her party fully supported what she described as Pakistan's peaceful nuclear programme to meet its energy requirements.

Talking about the controversy involving Dr. Khan's interview, she said such programmes could be successfully implemented only by maintaining strict secrecy.

The government should order an investigation to expose those behind leaking out state secrets, she demanded.

Ms. Bhutto said she did not know how far the Pakistani scientists had advanced in the atomic field, "but we should strive hard to become an atomic power capable of producing energy for peaceful purposes."

Asked whether her party had approached the United States to link the aid package to Pakistan with fresh elections in the country, she observed that aid packages in the past were made conditional to the grant of basic human rights.

/12379
CSO: 5150/0118

GOVERNMENT 'SERIOUSLY CONSIDERING' USSR NUCLEAR PLANT

BK071620 Hong Kong AFP in English 1024 GMT 7 May 87

[Text] New Delhi, May 7 (AFP) — The Indian Government is seriously considering a Soviet offer to set up a nuclear power plant in India, Minister of State for Science and Technology R.R. Narayanan told Parliament here Thursday.

India has a "high opinion" of Soviet nuclear technology despite the Chernobyl disaster, Mr. Narayanan said in the upper house. But India would consider every offer carefully with regard to safeguards, he added.

The Soviet offer was received recently, the minister said. India is also considering setting up nuclear power plants with help from [illegible]. Mr. Narayanan said, but did not name any.

Nuclear officials have previously said that India would buy Soviet atomic power plants if the country falls short of the targeted production of 10,000 megawatts of nuclear power by the year 2,000. According to Indian plans, 10 per cent of all power generated in India by the turn of the century should be from nuclear plants.

The statement by Mr. Narayanan came as Prime Minister Rajiv Gandhi declared that India and the Soviet Union were embarking on a "totally new phase of collaboration" following last year's visit by Soviet Leader Mikhail Gorbachev.

"Our state-to-state collaboration with the Soviet Union is very substantial and after the visit of the Secretary-General Mr. Mikhail Gorbachev, we are opening a totally new phase of collaboration," Mr. Gandhi told the upper house.

An Indian scientific delegation would visit the Soviet Union soon, Mr. Gandhi said. A high-level Soviet scientific delegation visited India recently.

Mr. Narayanan said Indian nuclear power plans included developing by 1990 the prototype of a 500-megawatt fast breeder reactor to be operational by the turn of the century. India has a fast breeder test reactor at Kalpakkan in southern India modelled on the French plant at Rapsodie. It uses locally-mined carbide fuel with plutonium and uranium base instead of enriched uranium.

Mr. Narayanan said efforts were under way to revive an agreement with France for collaboration in nuclear research. France supplies enriched uranium for India's main nuclear power plant at Tarapur in western India.

/9274
CSO: 5100/4746

GOVERNMENT UNEASY OVER PAKISTAN NUCLEAR 'THREAT'

Reconsideration of Nuclear Option

BK221638 Delhi Domestic Service in English 1530 GMT 22 Apr 87

[Text] The need to strengthen and modernize the Armed Forces to meet the threat to the country's security was highlighted by the members in the Lok Sabha toda. They were taking part in the discussion on demand for the grants of the External Affairs Ministry.

Most of them wanted the government to reconsider its nuclear option in view of the reports that Pakistan has now capability to make a nuclear weapon.

They also expressed serious concern over induction of sophisticated arms into Pakistan by the United States.

The members said the military links between Pakistan, China, and the United States pose a serious threat to the security of the nation. However, an opposition member favored a joint defense strategy for the Indian subcontinent.

Referring to the border dispute with China, some of the members wanted a peaceful negotiated settlement but without compromising India's territorial integrity.

They also favored a political settlement of the ethnic problem in Sri Lanka.

Tiwari on Pakistan Nuclear Program

BK231433 Delhi General Overseas Service in English 1330 GMT 23 Apr 87

[Text] The external affairs minister, Mr N.D. Tiwari, said in Parliament today that the nuclear weapons program of Pakistan is of paramount concern to India.

He told the members that India has initiated a dialogue with the U.S. Government leaders and also members of the Congress to impress upon them that arming of Pakistan would endanger the security environment in the subcontinent.

He said the minister of state for external affairs, Mr Natwar Singh, is currently engaged in this dialogue which is essentially a part of India's diplomatic efforts (?for) maintaining friendly relations with all countries. Mr Tiwari said that the Pakistani Government instead of trying to get more armaments should discuss various proposals for mutual friendship and goodwill put across by India.

Defense Minister on Rethinking Nuclear Option

BK270902 Delhi Domestic Service in English 0830 GMT 27 Apr 87

[Text] The defense minister, Mr K.C. Pant, told the Lok Sabha today that India is being forced to reconsider its nuclear options particularly in the face of the emerging nuclear threat from Pakistan.

Replying to the debate on the demand for grants of his ministry, Mr Pant said that Pakistan is continuing its nuclear program single-mindedly. The linkage of Pakistan, China, and the United States with (?their) pronounced anti-India overtones has a bearing on our security environment.

Besides, the manner in which the United States has chosen to ignore the search of Pakistan for nuclear capabilities has left India with no choice but to take appropriate defensive measures. India is pursuing various options to upset the danger posed by the United States clearing the supply of Air Warning And Control System — AWACS — to Pakistan.

Referring to the "Brass Tacks" exercise undertaken by the Indian Army recently, Mr Pant said despite the government's clear understanding with Pakistan that it was an annual affair, Pakistan seized the opportunity to seek the help from the United States to upgrade its militarization program. He said the arms acquired by Pakistan has no relevance to its border with Afghanistan.

Pakistani Minister Defends Nuclear Installations

BK231752 Karachi Domestic Service in Urdu 1700 GMT 23 Apr 87

[Excerpt] Foreign Minister Sahabzada Yaqub Khan has said the government has taken appropriate precautionary steps to protect the country's peaceful nuclear installations. He said this while opposing an adjournment motion which was sought to be moved by Chaudhary Mohammad Tariq [in the Senate]. The motion sought to discuss the press reports on collusion between Israel and India on attacking Pakistan's nuclear installations. He said that although such occasional reports have caused concern, the Indian Government has rejected them. He said an agreement was reached between Pakistan and India on December 1985 that they will not attack each other's nuclear installations.

Sahabzada Yaqub Khan said that the government has made it clear that any attack on Pakistan's nuclear installations will be considered an act of war, in which case effective retaliatory steps will be taken against the aggressor. He said that no one should misunderstand Pakistan's defense capability against such aggression. The move was not pressed [passage omitted]

Pant: U.S. Ignores Pakistan

BK221607 Delhi Domestic Service in English 1530 GMT 22 Apr 87

[Text] The defense minister, Mr K. C. Pant, has said that the United States is helping Pakistan to have a technological edge over India by supplying sophisticated weapons to that country. He said this would need to be countered through matching acquisition and by planning an adequate strategy. Mr Pant was addressing the biannual conference of the Air Force commanders in New Delhi today.

He said it is apparent that the United States is willing to ignore Pakistan's acquisition of capability for manufacturing nuclear weapons. Mr Pant said the Sino-Pak-American linkage has its obvious influence on military and political ties among the three countries extending into the area of nuclear technology.

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CSO: 5100/4741

PROBABLE EFFECTS OF NUCLEAR BOMB ON DELHI TOLD

Bombay THE TIMES OF INDIA in English 23 Mar 87 p 18

[Text]

NEW DELHI, March 22: About two million people will be instantly killed, all buildings within a radius of two kilometres of Connaught Place will be flattened and fires will rage through most parts of the city if a nuclear bomb of one megaton is dropped over the heart of New Delhi.

These are the findings of a study done by scientists of the Institute of Nuclear Medicine and Allied Sciences (INMAS), which were presented by Col. S. K. Sharma, deputy director of INMAS, at the second national conference of the National Association of Indian Doctors for the Prevention of Nuclear War (NAIDPNW), presently on at the All-India Institute of Medical Sciences (AIIMS).

Col. Sharma told the distinguished gathering which included some representatives from abroad, that temperature will shoot up to 1,000 degree celsius within an area of four kilometres around the epicentre of the blast. The area closest to the epicentre will turn into a giant crater and tonnes of dust from it would rise up to one kilometre into the atmosphere.

Nienty-eight per cent of the population within two kilometres of the epicentre would die instantly while up to a distance of five kilometres, the instant fatalities would be 45 per cent, Col. Sharma said.

The study, which took inputs like the city's geography, theoretic energy, shock waves and temperatures generated by a nuclear explosion, also said people within four kilometres of the blast would get a dose of 1,000 rads which is enough to damage the central nervous system and cause death within days.

Col. Sharma pointed out that the dust kicked up by the crater would fall back to the ground across a large area contaminating fields and river water. He also said that people living as far as 18 kilometres from the explosion site would suffer from second degree burns.

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CSO: 5150/0122

PAKISTAN MILITARY APPOINTMENT REVEALS NUCLEAR POLICY

Madras THE HINDU in English 19 Mar 87 p 9

[Article by G. K. Reddy]

[Text] The appointment of Gen. Akhtar Abdul Rahman Khan, Chief of Military Intelligence, as the next Chairman of the Pakistan Joint Chiefs of Staff Committee, is viewed with some concern in Delhi because he is known to be a strong protagonist of that country's bid to acquire nuclear weapons.

As Chief of Military Intelligence, he has been exercising the overall responsibility for the security of Kahuta and other nuclear establishments in Pakistan, which meant that he had to work in close concert with Dr. Abdul Qadir Khan and others engaged in the bomb project.

Though Gen. Zia-ul-Haq retains his dual position as President and Chief of Army Staff, the elevation of Gen. Akhtar Abdul Rahman Khan could not have been done except with the intention of associating him more closely with Pakistan's bomb project and providing effective liaison between the Army and the nuclear establishment.

Sharp differences: According to well-informed diplomatic sources there have been sharp differences between the Prime Minister of Pakistan, Mr. Mohammed Khan Junejo, who sees no harm in keeping up the pretence that his Government remains committed to using nuclear power only for peaceful purposes and the hardheaded Army Generals who have set their heart on acquiring the nuclear capability as early as possible.

The outgoing Chairman of the Joint Chiefs of Staff, Gen. Rahimuddin Khan, is not only a Zia loyalist but also related to him since his son is married to the daughter of Gen. Zia. In spite of this close relationship, Gen. Zia has not given him an extension, because he presumably wanted a tougher one like Gen. Akhtar Abdul Rahman Khan in this key position.

The operative head of the Pakistan Army, Gen. K. M. Arif, the Vice-Chief of Staff, is also retiring from the Army, but he is probably earmarked for a more important post in a civilian garb after shedding his military uniform. He would continue to remain as one of Gen. Zia's closest confidants performing such tasks that are assigned to him to sustain the army grip on the country and the Government.

It is against this general background that many in senior positions in the Government of India who are otherwise well disposed towards Pakistan have been wondering whether Gen. Zia is really interested in better Indo Pakistan relations. During his recent visit to Delhi, he talked once again of his desire for improved political, economic and social contacts between the two countries and their peoples.

Rigid postures: But on his return to Islamabad, Gen. Zia's Government has reverted to the old rigid postures with no signs of any flexibility whether it is on trade, reopening of a southern land route, encouragement of more travel and tourism, or even exchange of newspapers, films and other items of cultural relations. The much talked of spirit of bilateralism is totally absent in the policies and actions of the Pakistan Government, not only in relation to its nuclear pursuits but also in such small matters as observance of nominal good neighbourly relations.

The Indian experts on Pakistan have been taken aback by the revival of the virulent anti-Indian propaganda in some sections of the Pakistani Press accusing India of a formidable expansion of its military strength posing a grave threat to Pakistan. And the increase in the Indian defence budget is being used as an excuse to malign India as a war-mongering nation with hostile intentions.

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CSO: 5150/0121

TIBETAN SAYS PRC NUCLEAR WEAPONS AIMED AT INDIA

New Delhi PATRIOT in English 10 Mar 87 p 1

[Text]

Shimla, March 9 (UNI)—China is stockpiling nuclear weapons "aimed at India" at different places in Tibet, a spokesman of the Tibetan Youth Congress said here today quoting visitors from Tibet.

The weapons include a large number of intercontinental ballistic missiles, the spokesman told newsmen.

He said major nuclear stations had been set up at Nagchu, in eastern Tibet. A series of nuclear experimentation centres were also reported to have been established, particularly in the Gobi desert. The spokesman feared they would pollute the waters of rivers flowing from Tibet to India and Burma.

"The Chinese nuclear experiments will soon make Tibet a source of death-wind of nuclear radiation flowing across Asia", the spokesman said.

He quoted the visitors, stated to have just returned from Tibet, as having said that there had been a massive military buildup in Tibet.

To ward off the threat posed by China, the spokesman called for restoration of Tibet's status as a free and independent buffer between India and China. He demanded that Tibet be declared a zone of peace—totally demilitarised and free from nuclear weapons.

Meanwhile, the Dalai Lama, the spiritual head of Tibetans, in a message in connection with the 28th anniversary of the Tibetan National Uprising Day, has said the policy of liberalisation in China posed a greater danger than ever before to the survival of Tibetans, their religion and culture.

"The policy of colonisation and demographic aggression posed a great threat of reducing our people to a minority in our own country. This has rendered the much publicised Chinese claim of respecting Tibetan identity, religion, culture and traditions meaningless," the message said.

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CSO: 5150/0115

HEAVY WATER PROJECTS DIRECTOR SEEKS RETIREMENT

Bombay THE TIMES OF INDIA in English 3 Mar 87 p 5

[Text]

BOMBAY: March 2.

THE request by Mr. N. Srinivasan, chief executive of heavy water projects of the Department of Atomic Energy (DAE), seeking voluntary retirement has been forwarded to the cabinet appointments committee for approval, it was reliably learnt here today.

As per Central government service rules, Mr. Srinivasan has given three months' notice and intends to retire by April-end. He has not sought a waiver of this notice period, top DAE sources said.

Mr. Srinivasan, confirmed that he had indeed put in his request. He added that the announcement had been made on February 26 by Dr. Raja Ramanna, who relinquished office as chairman of the Atomic Energy Commission (AEC) on Saturday.

At the meeting, called at the Central Complex auditorium at BARC to bid farewell to Dr. Ramanna, the former AEC chairman reportedly said: 'It is unfortunate that Mr. Srinivasan is also laying down office now. Inspite of my persuasion, he has not changed his mind.'

Over 1,000 scientists and engineers of the DAE were present at this meeting. Mr. Srinivasan was also present, it was learnt.

VOLUNTARY OFFER

DAE sources said that Mr. Srinivasan's request for voluntary retirement had nothing to do with the recent controversy surrounding the appointment of a successor to Dr. Ramanna. He had expressed his desire to seek voluntary retirement long before the struggle erupted, it was stated.

Mr. Srinivasan was, however, not willing to go into the reasons for his request for voluntary retirement.

In a statement to the press today, he pleaded that his right to privacy be respected and hoped that he would be "spared this gross intrusion . . . at least when I am a private citizen in the not-too-distant future."

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CSO: 5150/0104

IMPLICATIONS FOR INDIA OF NUCLEAR WEAPONS IN ASIA

Bombay THE TIMES OF INDIA in English 28 Mar 87 p 8

[Article by K. Subrahmanyam]

[Text] With Pakistan joining the nuclear club, Asia has a fifth nuclear weapons power, the others being the USSR, China, the USA and Israel. And many Asian nations are involved in providing the infrastructure for nuclear powers. In this article I propose to outline briefly how extensively and intensively nuclear weapons and the nuclear war fighting infrastructure have spread over the Asian continent and its implications for India.

The bulk of the 1398 Soviet ICBMs and nearly 170 medium-range and intermediate-range missiles are believed to be deployed in the Asian part of the Soviet Union. Some 385 submarine-borne strategic missiles are also said to be allotted to the Far Eastern fleet. Besides these, the Siberian, the Far East, the Central Asian and the Trans-Baikal military districts have short-range nuclear missiles, nuclear artillery and nuclear-capable aircraft. Some Western experts maintain that nuclear-capable IL-38 anti-submarine aircraft operate from the Aden international airport and the Al Anad airbase in South Yemen. The Soviet navy has established major naval bases in Camranh bay and Danang in Vietnam. Some of the naval vessels and the TU-16 aircraft operating from these bases are nuclear-capable. Some Frog-missiles are also believed to be deployed in Mongolia.

China's Exercises

The Chinese were reported to deploy in 1986 six ICBMs, around 60 intermediate-range nuclear weapons and 50 medium-range nuclear weapons on the mainland, including some in outer Tibet. In addition, China has two nuclear missile submarines and is believed to be planning to build at least four more. China has conducted large-scale army exercises with tactical nuclear weapons and should be deploying them with its forces.

The United States deploys its nuclear weapon carriers, nuclear weapons and nuclear war fighting infrastructural facilities in Diego Garcia in the Indian Ocean, Japan, Oman, the Philippines, South Korea and Turkey. Diego Garcia has been authorised to have wartime deployment of nuclear depth-bombs to support P-3 Orion anti-submarine aircraft operations. Diego Garcia also supports the presence of a carrier battle group which invariably has nuclear weapons on board. Diego Garcia also has a space tracking station, a satellite communication station, and a *Navstar* tracking and control ground antenna and a passive monitoring station. The last system helps to improve the guidance and accuracy of missiles.

The United States maintains in Japan the most extensive forward nuclear infrastructure in the Pacific region; the Kadena air base on Okinawa houses strategic tankers, reconnaissance aircraft and communications network to support nuclear operations. There are eight other nuclear communications stations in Japan. Nuclear-capable forces such as Marine Corps artillery, Aviation units, P-3 Orion anti-submarine aircraft and the Carrier *Midway* are stationed in Japan. Misawa

airbase is reported to be prepared to receive nuclear depth bombs in wartime.

The Masirah Island in Oman is used as a periodic staging post for nuclear-capable American P-3 Orion anti-submarine aircraft. Nuclear weapons are reported to be no longer permanently stored in the Philippines, although stand-by storage is available. Subic Bay is the largest U.S. overseas naval installation, being the headquarters of the Seventh Fleet with carrier task force, which normally has nuclear weapons on board. The Clark Air Force base has emergency action facility to operate nuclear-capable aircraft and receive nuclear orders.

U.S. forces in South Korea are believed to deploy 151 nuclear warheads. U.S. and South Korean forces are integrated in terms of planning and operation, involving nuclear weapons. Turkey as a member of the NATO has 489 nuclear weapons deployed on its territory.

Israel is reported to have over 200 nuclear weapons. This was an open secret for well-over a decade. While generating signals continuously about its nuclear prowess, Israel officially denies that it has nuclear weapons. Pakistan has copied the Israeli strategy of ambiguity.

Now Pakistan joins the list of nations in Asia with nuclear weapons. Even earlier, the U.S. P-3 anti-submarine warfare aircraft, the standard equipment of which is a nuclear depth charge, has been using landing facilities at the Mauripur airfield.

A Smokescreen

It is against this background that one has to consider various proposals for nuclear weapons free zones. Often these proposals are put forward as a smokescreen, to cover nuclear weapons acquisition. Mr. Zhou En-Lai put forward an Asian Pacific nuclear weapons free zone proposal in 1963, even as China was racing ahead to acquire nuclear weapons capability. The Israelis with a nuclear arsenal of 200 weapons, have proposed a Middle East weapons free zone. Pakistan too has been pressing its South Asian nuclear weapons free zone ever since it started its quest for nuclear weapons.

Pakistan argues that China is a South Asian power. Geographically, this is correct since the latitude touching the north of Jammu and Kashmir and North-West Frontier Province will have to its South more than 50 per cent of China. The U.S. too recognised China's legitimate interest in South Asia in the Shanghai communique. Then how can one have a realistic South Asian nuclear free zone, without China's participation? What kind of nuclear weapons free zone will it be, if U.S., Soviet and Chinese nuclear capable ships can sail just 12 miles off our coast, and nuclear-capable planes can use the facilities in the area?

The purpose of Pakistan's nuclear weapons free zone proposal is to disarm India vis-a-vis China. In his interview on January 28, Dr. A. Q. Khan said that China as a big country was justified in possessing nuclear weapons. But, according to him, India, which has three-fourths of China's population, should be equated to Pakistan which has one-eighth India's population and should forswear the weapons. It is not surprising that Dr. Khan puts forward this argument. What is unfortunate is that there are a number of people in this country for whom sovereignty of India means so little, that they are ready to follow the example of our princes of 18th and 19th centuries, who enthusiastically accepted Lord Wellesly's subsidiary alliance system and voluntarily brought India under foreign hegemony.

Some others argue that India's advocacy of nuclear disarmament is not consistent with India exercising nuclear option. This is like arguing that those who consider murder as a crime, have no right of self-defence. Gorbachov proposes total elimination of nuclear weapons, yet continues to build nuclear weapons and has resumed nuclear weapon tests. Those who are preoccupied about our sin of going nuclear when Asia is being nuclearised represent the traditional view of our ancestors, who couldn't care less if India came under the British Crown, so long as their own caste and religious purity and sectarian interests were safeguarded. That India has been in the forefront of the nuclear disarmament efforts is a convenient and self-satisfying myth. In reality, the rest of the world, particularly the West, totally ignores all our efforts in the U.N. and the western literature on arms control and disarmament has not, by and large, taken note of our resolutions and so-called initiatives. The limited credibility India commands is because of our Pokhran test of 1974. Only the initiatives and proposals of nuclear weapon powers command attention in the councils of major

powers. If India were to continue to abstain from nuclear weapon option, even after Pakistan has gone nuclear, then the rest of South Asia, China, the U.S. and the USSR are bound to re-evaluate their attitude towards India to our disadvantage and peril.

Logical Conclusion

All nations will draw the logical conclusion that India has no will to act in the nuclear field. It was such an image that led General Ayub Khan to launch "Operation Gibraltar" in 1965, and the Chinese to support the Naga and Mizo insurgents in the sixties and seventies. Other small neighbours of South Asia will look to a nuclear Pakistan, tacitly allied to China and the U.S., for leadership. Even the USSR will consider India more of a liability than a partner, and will develop its policy towards Pakistan and other South Asian neighbours accordingly. The U.S. will be confirmed in the view it held in the fifties and sixties, that the effective power between Israel and Vietnam was Pakistan.

Israel and Pakistan have proved that costs of going nuclear are affordable even by small nations. China has proved that when a nation has the nuclear shield, it can afford to go slow on its modernisation of conventional weapons, which is relatively far more costly. For China, France, Israel and Pakistan the nuclear effort has involved only ten to 15 per cent. of the defence effort.

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CSO: 5150/0124

BRIEFS

BIHAR PLANT SITE--PATNA, March 8--The Centre is likely to approve a number of major projects for Bihar soon, reports PTI quoting official sources. Sources said here today that the projects included a 1,000-MW atomic power plant, an aromaic complex and an ordnance factory. The Chief Minister of Bihar, Mr Bindeshwari Dubey, had a detailed discussion on the issue with the Prime Minister, Mr Rajiv Gandhi, in New Delhi last Wednesday and Mr Dubey submitted a report containing a list of the projects awaiting green signal from the Centre. An Atomic Energy Commission team had recently visited Bihar in connexion with selection of site for the atomic power plant, sources added. The team chose two sites--Jharua near Chandil and Baraduh in Rohtas, for the project. The report submitted to the Prime Minister, indicated that Jharua had all the facilities like availability of water, land and electricity. It was also suitable since it has the required infra-structure facilities. Meanwhile, the Atomic Energy Department has sought a report on geological and seismic factors for both the sites. The Indian Meteorological Department suggested the name of Roorke University for investigation of soil and seismic conditions. Dr S. S. Arya of the Department of Earthquake Science of the university, however, was in favour of Jharua.

SAFETY OF PLANTS AFFIRMED--Prime Minister Mr Rajiv Gandhi has assured Lok Sabha that government is taking adequate care of safety factors at atomic power plants to prevent any accidents. Replying to supplementary during question hour prime minister said that atomic power plants are functioning well and there is no need to worry. Replying to main question about the Narora atomic power project Minister for Science and Technology and Atomic Energy Mr R Narayanan said life of the Narora project is 25 years but it is expected to continue to generate power safely over a longer period. He assured house that government has no intention to stop work. Precatuionary measures are being taken to ensure its safety. [Text] [Delhi ISI Diplomatic Information Service in English 1430 GMT 6 May 87 BK] /9274

SECOND FAST BREEDER REACTOR PLANNED--The construction of the second fast breeder test reactor at Kalapakkam will be taken up within 3 years. The minister of state for science and technology, Mr K. R. Narayanan, stated this in the Rayja Sabha today during question hour. He said France has been giving enriched uranium for the Tarapur atomic reactor according to an earlier agreement. Indian scientists are working on French technology and have developed an alternative fuel at Kalpakkam, he added. Replying to a supplementary, the minister informed the house that currently India does not have any agreement on nuclear collaboration with a country. However, discussions on this are going on with friendly countries. [Text] [Delhi Domestic Service in English 0830 GMT 7 May 87 BK] /9274

FRENCH, RUSSIAN OFFERS--The Union government has received a "preliminary offer" from France to set up a nuclear power plant in India on a turn-key basis, the Rajya Sabha was informed today. The minister of state for defence production, Mr. Shivraj Patil, said in a written reply that a group headed by Prof. M. G. K. Menon, scientific adviser to the Prime Minister, was looking into the Soviet offer of assistance in the construction of a nuclear power plant. [Text] [Bombay THE TIMES OF INDIA in English 20 Mar 87 p 6] /13104

CSO: 5150/0126

INSPECTION OF NORWEGIAN HEAVY WATER BARRED

Jerusalem THE JERUSALEM POST in English 16 Apr 87 p 1

[Article by Benny Morris]

[Text]

Israel has rejected Norway's request that it agree to international supervision of its use of Norwegian heavy water shipments to Israel in 1959 and 1970.

The Israeli response to Norway's request for "clarifications" about the fate of the heavy water was delivered some 10 days ago, shortly after Norwegian foreign minister Thorvald Stoltenberg, in an interview with visiting Israeli diplomatic correspondents in Oslo, implicitly complained about the delay in the Israeli response.

Norway submitted its request for "clarifications" on March 4. The Norwegians asked about the fate of the 21 tons of heavy water shipped to Israel (20 tons in 1959 and one ton in 1970) and whether Israel would agree to submit to international-International Atomic Energy Agency-supervision of its use of the heavy water.

Israel's response was that the Norwegian shipments were only two among several delivered over the decades to Israel and that it is, at this late date, technically "impossible" to determine what happened to specific shipments. Jerusalem rejected the idea of international inspection as pointless.

Officials in Jerusalem added, in explanation, that the IAEA attitude towards Israel has traditionally been "unobjective."

The Norwegian request for information about Israel's use of the heavy water was triggered by the Vanunu affair and by subsequent, repeated questions on the subject by a left-wing MP, Theo Koritzinsky, in the parliament in Oslo. The Norwegian foreign ministry only reluctantly took up the issue with Jerusalem.

A week ago, Foreign Minister Peres, at a meeting in Rome of the Socialist International, conveyed the gist of the Israeli response to Norway's prime minister, Gro Harlem Brundtland. Oslo's reaction to the Israeli response is unknown.

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CSO: 5100/4524

NEGEV ENCLAVE PROPOSED FOR GERMAN REACTOR

Jerusalem THE JERUSALEM POST in English 17 Apr 87 pp 1, 18

[Article by Benny Morris]

[Text] Israel has asked West Germany to sell it a nuclear-power reactor and has proposed setting it up in an "extra-territorial" enclave in the Negev, near Shivta, in order to bypass the major political obstacle to the transaction.

Bonn, for its part, is "essentially willing" to carry out such a sale, the visiting West German Minister of Research and Technology Dr. Heinz Riesenhuber said yesterday, after protracted talks with Foreign Minister Peres and Science and Technology Minister Gideon Patt in Jerusalem. Riesenhuber was speaking at a luncheon hosted by Patt, which was attended by Israeli and German officials and journalists.

Peres proposed to Riesenhuber that the plant be placed in an "extra-territorial" enclave over which there would be some sort of joint Israeli-West German, or international, jurisdiction and control. The extra-territorial idea was apparently first proposed by Israel in negotiations in the early 1980s with the U.S. for purchasing an American reactor. It is meant to overcome the problem posed by Israel not signing the nuclear non-proliferation treaty.

International law circles in Jerusalem yesterday called the "extra-territorial" proposal "nonsense."

The U.S. and apparently France both raised the non-proliferation objection when Israel approached them about purchasing a nuclear plant. Being a non-signatory to the treaty means that there is no obligation on Israel to submit to, and no mechanism for, international supervision of the use of such a plant.

Signatories to the non-proliferation treaty agree to international inspection of their nuclear facilities and, ultimately, to control of their use by the UN Security Council. Israel has proposed signing a regional, Middle Eastern "nuclear free zone" treaty which would exclude international or outside inspection and controls. But such a treaty would provide for mutually-agreed inspection of nuclear sites by the signatories.

Riesenhuber and Patt said that Israeli-West German talks regarding the purchase of the reactor "would be continued."

Riesenhuber said the nuclear plant under discussion is a "high temperature gas-cooled reactor" whose prototype went into operation in Germany half a year ago.

Patt said that the West German reactor in which Israel is interested is relatively "pure" and "safe," and has the advantage that it could be used to produce 300 megawatts of electricity – as the currently operational German plant is doing – or "100, or more than 300. It can be beautifully suited to our needs," he said.

Patt said that the West German nuclear plant also had an advantage over the larger American and French models in being militarily non-vulnerable.

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CSO: 5100/4522

BRIEFS

NORWAY AWAITING CLARIFICATIONS--The deputy director general of the Norwegian Foreign Ministry secretly met with Yesha'yahu 'Anug, his Israeli counterpart, about one month ago to discuss the use Israel made of heavy water it purchased from Norway. Norway is still awaiting clarifications from Israel about the use it made of this water, which is essential for the operation of a nuclear reactor. This was stated today by the Norwegian foreign minister to Israeli correspondents touring Scandinavia. Our correspondent Yoram Ronen reports that Norway became interested in the subject in the wake of the Vanunu affair. [Text] [Jerusalem Television Service in Hebrew 1900 GMT 8 Apr 87 TA] /12913

CSO: 5100/4521

FRANCE PROPOSES NUCLEAR COOPERATION

BK080236 Karachi Domestic Service in Urdu 1500 GMT 7 May 87

[Text] France has proposed to Pakistan to seek an out-of-court settlement to the dispute over the decision to cancel supply of the Chashma [nuclear] reprocessing plant in 1978. The proposal was made by French Foreign Minister Jean-Bernard Raimond, during his talks with Foreign Minister Sahabzada Yaqub Khan in Islamabad yesterday.

Clarifying the proposal at a news conference in Islamabad this afternoon, Raimond said that France will consider every possible form of cooperation with Pakistan in nuclear power generation to meet its energy needs as soon as this dispute is settled, and other European countries can also participate. The French foreign minister said that Pakistani authorities are examining the French proposal and France is awaiting the Pakistani response.

Replying to a question, he explained that the nuclear power plant that might be constructed in Pakistan as a result of French cooperation will fall within the framework of France's international commitments and International Atomic Energy Agency safeguards. These safeguards will be similar to those applied to French-built nuclear plants in the PRC and ROK.

The French foreign minister said that his country considers Pakistan a reliable, friendly country and wants to strengthen its relations. He said that Pakistan has been playing an important role in ensuring regional stability and in international affairs. He said that during his talks with President Muhammad Ziaul Haq, Prime Minister Mohammad Khan Junejo, and the foreign minister, views were exchanged primarily on bilateral relations and cooperation, the Afghan situation, and North-South cooperation. He said that during the talks with Sahabzada Yaqub Khan, they identified several projects of mutual interest in the fields of telecommunications, aeronautics, transport, and energy. He said France considers Pakistan's stand on Afghanistan constructive and constructive. The French foreign minister reaffirmed his country's position that the Afghan people's struggle against foreign intervention is just and that France is providing moral and diplomatic support to the Afghans by condemning Soviet interference in Afghanistan. He hoped that the new Soviet leadership will find a political settlement of the Afghan issue.

The French foreign minister, Jean-Bernard Raimond, met separately with President Mohammad Ziaul Haq and Prime Minister Mohammad Khan Junejo in Islamabad today. They exchanged views on bilateral relations and examined the ways to further develop mutual cooperation. They also exchanged views on the Afghan situation and other matters of mutual interest.

During these meetings the French foreign minister said that President Mitterrand and Prime Minister Chirac highly value Pakistan and appreciate its courageous and principled stand on Afghanistan. He said France considers Pakistan's balanced policy, which contributes a factor of stability in the region. During his meeting, the prime minister told the French foreign minister that he was highly impressed by his meetings with President Mitterrand and Prime Minister Chirac in July last year.

/9274
CSO: 5100/4745

SPOKESMAN ON COOPERATION WITH FRANCE

Karachi Domestic Service in Urdu 14 May 87

[Excerpts]

Pakistan has welcomed the French offer of negotiations on the construction of a nuclear power plant at Chashma after the reprocessing plant issue has been settled. A Foreign Office spokesman told newsmen in Islamabad today that serious discussions have begun on Pakistan's claim for compensation for France' nonfulfillment of the agreement to supply a nuclear reprocessing plant. Pakistan hopes that the compensation will be commensurate with the losses it has incurred due to France' nonfulfillment of the agreement about 8 years ago, which caused a serious setback to Pakistan's nuclear energy program in addition to immense financial losses. He expressed the hope that Pakistan will receive adequate compensation, leading to an appropriate settlement of this issue and paving the way for an increase in bilateral cooperation.

In reply to a question, the spokesman disclosed that Pakistan is considering the issue of an early ratification of the treaty on a partial restriction on nuclear tests. Pakistan signed this agreement in 1963 and now considers itself morally committed to the pact, which prohibits nuclear tests in the atmosphere, under water, and in the upper atmosphere. Pakistan, the spokesman explained, has not ratified the treaty so far because it is confident that a treaty will soon be arrived at totally banning nuclear explosions. He added that the treaty for a partial ban on nuclear tests does not apply to underground nuclear explosions and experiments. In this connection, the spokesman referred to India's nuclear explosion in 1974, although that country is a signatory to the treaty.

/9317
CSO: 5100/4747

COMMENTARY VIEWS INDIAN CLAIMS OF NUCLEAR THREAT

BK091704 Karachi DAWN in English 3 May 87 p 9

[Editorial: "India's Nuclear Politics"]

[Text] The statement made by the Indian Defence Minister in Lok Sabha on Monday about his country's intention to review its nuclear options hardly makes much difference to the facts of reality as they are widely known. If India decides to go public on its nuclear accomplishment — in terms of bombs it has made or can make in a short time — that would hardly qualify to be treated as an exciting new development; it would at best be a formal admission of a more or less known fact. When it exploded its nuclear device at Pokhran in the Rajasthan desert in 1974, it staked its claim to the membership of the exclusive nuclear club by demonstrating its capability of making the bombs, despite its well-orchestrated diplomatic denials. This was a bomb with plutonium as its base. In 1985, India became the first Third World country, and the seventh in the world, to have acquired the capability to build and run a fast-breeder reactor with domestic technology and fuel. A fast-breeder reactor with domestic technology and fuel. A fast-breeder reactor is suitable for uranium enrichment and can produce U-233, a weapons-grade material that can be used for building atomic bombs. Thus, India demonstrated its double capability to make bombs using either plutonium or enriched uranium. India's nuclear status was recently recognised in the U.S. Congress during the markup of the foreign assistance Bill, including 4.02 billion dollar aid package for Pakistan. The House of Representatives Committee adopted a legislation (later accepted by the Senate committee, too) which squarely put the onus on India for ensuring nuclear non-proliferation in the region. The "sense-of-the-house" resolution (which is not binding) requires the U.S. Government to involve India in the nuclear non-proliferation process, while it acts "to prevent Pakistan from making the bomb." The U.S. Congress is thus not only concerned about "Pakistan's nuclear weapons programme;" it is equally worried about India's refusal to accept international safeguards and on-site inspection of its nuclear facilities.

There is, however, a twist in the statement made in the Lok Sabha. The Indian Defence Minister has linked the intention to review his country's nuclear options to "the emerging nuclear threat from Pakistan". This is an extraordinary example of extracting a pretext out of a threat perception which is as self-serving as it is shoddy. The contrivance involved in this argument is patent in view of New Delhi's lack of response to the many offers made by Pakistan to dispel suspicions and distrust on this score. These include proposals that (a) India and Pakistan jointly sign the nuclear Non-Proliferation Treaty; (b) jointly declare South Asia a nuclear-free zone; (c) agree to mutual inspection of each other's nuclear facilities; (d) simultaneously accept complete IAEA safeguards for all nuclear installations; and (e) the States of South Asia make a binding declaration to renounce acquisition or manufacture of weapons. Add to this President Ziaul Haq's solemn declaration of March 21 — "Pakistan has discarded the nuclear option for non-peaceful purposes deliberately, unilaterally and with a great sense of responsibility" — and the picture is complete. The most recent example of India's consistent refusal to respond positively to offers and initiatives to dispel any misgivings about each other's nuclear intention is provided by its summary rejection of Pakistan's latest proposal for agreeing to impartial inspection of the two countries' nuclear programmes and installations. No cogent reason has been given for this negative response, aside from including Pakistan's offer as a 'propaganda ploy' aimed at diverting world attention from its 'offensive' nuclear programme. The paradox is that if Pakistan is hiding a skeleton in its nuclear cupboard, the best way to expose it is to put it to mutual or neutral scrutiny has no appeal for New Delhi. This aversion to any form of inspection has its own story to tell.

However, if India has other reasons to want to enhance its nuclear capability — say, its drive to rival China in the nuclear and other fields or its ambition to be recognised as a mini-superpower or the dominant power in the region — it should have the courage to say so openly, without dragging Pakistan into this power game to justify its move. If the decision makers in New Delhi think that achieving the grandeur of belonging to the big league is a higher purpose than improving the lot of their masses, they may well be deceiving themselves. About 40 per cent of India's population lives below the subsistence level. Neither India nor Pakistan can afford to divert its meagre resources from the clamant demands of development to the industry of death. But India has a greater responsibility to the one billion poor people that inhabit the subcontinent for the simple reason that it opened the Pandora's box with that infamous blast in 1974.

/9274
CSO: 5100/4745

INDIA'S 'DOUBLE FACED' POLICY ON NUCLEAR CHECKS SCORED

BK151007 Islamabad THE PAKISTAN TIMES in English 4 May 87 p 4

[Editorial: "India's Rejection"]

[Text] India's double-faced policy on the issue of nuclear checks in the region is once more of current interest. India has just turned down--no valid reasons offered--Pakistan's proposal for a bilateral arrangement for an impartial inspection of each other's Nuclear Programme. The only logic the Indian authorities feel obliged to offer is that the proposal is merely a ploy to deflect attention from Pakistan's nuclear ambitions. Taking India's own arguments at face value there are questions that remain unanswered. If India suspects that Pakistan is in the process of making a bomb and maintains that India's own nuclear programme is a peaceful one--then it escapes reason why India is averse to the idea of mutual inspection. Surely, if Pakistan offers access to its nuclear installations, the message is clear enough. Pakistan has nothing to hide. Pakistan's nuclear issue has two clear aspects, that of non-proliferation and regional security. It wants mutual guarantees on both counts. If India nurses any suspicions, surely it can consult the notes on Pakistan's efforts for disarming and keeping South Asia a Nuclear Weapon Fee Zone. Pakistan's first such proposal was put forward in the UN General Assembly back in 1974; since then at least a dozen such proposals have been presented by Pakistan and endorsed by the international body. Despite its verbal hysteria on Pakistan's nuclear ascendency, India has opposed the move with consistency.

Facts considered, it does appear that India adopts the "cry wolf" posture for external consumption and Pakistan has called the bluff. However, the busines of nuclear checks is too grave an issue to be subjected to foreign policy tactics. Pakistan has reservations about a situation where its neighbour exploded a bomb thirteen years earlier and has stepped up its defense spednings conspicuously since. Pakistan needs to counter the verbal hysteria directed at its Peaceful Nuclear Programme and clear its position with the donor countries. It is obvious that whipping up an international row over Pakistan's nuclear programme has failed to abort the $4.02 billion U.S. aid to Pakistan; Mr. Gandhi's generic label to the imaginary bomb could also have alienated the Islamic Bloc. The propaganda has certainly created a hawkish pro-nuclear bomb lobby within India, which in the final analysis is a hostile development for peace prospects in the region. Perhaps by reviewing its negative decision on mutual inspection, India could make amends for the misconceived policies of the past and cool down the nuclear acquisition fever it has created internally.

/6662

CSO: 5100/4748

BRIEFS

ENVOY EXPLAINS NUCLEAR POLICY--The Pakistan ambassador to India, Dr Humayun Khan, has said that his country is committed to the objective of global disarmament, particularly nuclear disarmament. He was speaking at a seminar in New Delhi on nuclear arms race organized by the Committee for a Sane Nuclear Policy. Dr Humayun Khan said a lot of confusion had been caused by some inaccurate press reports recently about Pakistan's peaceful nuclear program. Pakistan's policy in that regard is clear, and it has been categorically and officially (?expounded) at the highest level. Pakistan specially wants to ensure that the South Asian region is kept free from nuclear weapons, and it also believes that it is fully entitled to acquire nuclear technology for peaceful purposes. [Text] [Karachi Domestic Service in English 1100 GMT 30 Apr 87] /9604

CSO: 5100/4743

FRANCE TO MOVE SLOWLY ON NUCLEAR REQUEST

Paris INDIAN OCEAN NEWSLETTER in English 7 Mar 87 p 3

[Text]

Madagascar's request for a particle accelerator from France in order to do basic nuclear research can only be answered "in the medium or long term", and must follow the training of suitably skilled scientists and technicians, the French minister for co-operation Michel Aurillac has said. The minister, whose reply to a request from the deputy for Réunion, André Thien Ah Koon, for Paris's reaction to the Malagasy demand was published recently in the French official gazette, called on Madagascar to clarify its plan and get in touch with France's atomic energy commission. The request for a three mega-volt Van de Graaf-type accelerator was made by Malagasy president Didier Ratsiraka to Mr Aurillac during his visit to Antananarivo last year and repeated at the meeting of the joint economic commission in Paris in December.

/9317
CSO: 5100/37

KOEBERG SAFETY SYSTEM DISCUSSED

Johannesburg COMPUTER MAIL FINANCIAL MAIL Supplement in English 27 Mar 87 pp 71-73

[Text]

On the northward sweep of Table Bay, SA's first nuclear power station, Koeberg, is 30 km from Cape Town — less as the gull flies.

The sight of the concrete containment building, clearly visible across Table Bay, is a constant reminder to Capetonians that they live with the possibility — though remote — of a nuclear disaster. Long before Chernobyl, an anti-nuclear energy group, Koeberg Alert, was formed to publicise the dangers which it believes are inherent in any nuclear energy programme.

Escom is aware of the risk to the public, but says construction was "preceded by 10 years of investigation and exhaustive feasibility studies."

The organisation maintains that safety standards at Koeberg not only conform to stringent international criteria, but also to Escom's own quality assurance programme and the requirements of the Atomic Energy Board.

Koeberg staff accept the reality that "it," as they refer to a disaster, is possible. This serves to increase staff vigilance. To Escom's credit, it has prepared an extensive and costly emergency plan for what is generally regarded as a highly unlikely eventuality.

Disaster planning begins with the training of the plant operators. To reduce the likelihood of human error — as at Chernobyl, where operators ignored basic procedures and safety regulations — Koeberg personnel are required to spend one out of every four shifts in a computerised control room simulator practising routines relevant to the reactor's current fuel "life."

The simulator is based on a plant in France similar to Koeberg's original design. It is not an exact replica of the Koeberg plant because modifications were made to Koeberg's design during construction. As a result, the simulator has some response differences to the actual power station control room.

"It is very difficult to determine how close the simulator is to the real thing," says simulator training officer Chris Marais. "The hardware is very close — about 95% — but software is a problem. When we identify the response differences between the simulator and the control room, we have our computer people rewrite the software to make the simulator initate real working situations."

Software for the simulator comprises more than 140 "inids," Koebergspeak for "initialisation pages." These are programs which create predetermined, but variable specifications for different training exercises. Once loaded into the simulator's computer, the "inids" give the trainees the parameters of the plant for the simulated exercise.

Training exercises such as: "The escalation of electrical power from 50% to 100% with feed pump trips, turbine runback and rod run-out problems" require an "inid" to provide the simulator with a nuclear flux rate, fuel burn up, pressure in the primary system, primary temperatures, steam pressure and turbine speed. Thus, training is as realistic as possible when all functional anomalies are corrected.

"We cannot afford to train operators on a simulator that does not mirror the real

thing," says Peter Dini, computer section manager attached to the simulator. "It's not too difficult to reprogram the software. It takes a bit of time, but generally the trainers are happy with the improvements we've made. We are now looking at writing software specific to drills and routines we have developed locally."

Traditional data processing has a small but important role at Koeberg. Escom has transferred a number of DP staffers from its Cape Town branch and given them responsibility for on-site stores, payroll and costing. They provide programming expertise to management and oversee an on-line link to an Amdahl-based system at Escom's national headquarters at Megawatt Park in the Transvaal.

To overcome a skilled manpower shortage, the DP staff are creating a database designed to improve the monitoring of Koeberg's hundreds of kilometres of piping and thousands of working parts. Started three years ago, the program is referred to as "Koeberg Spares Information System." Once completed, it will require enormous data input to capture the more than 70 000 items relevant to Koeberg's construction.

DP department head Keith Morgan estimates that it will take another two years to complete.

"When finished, it will define the nuts and bolts of the plant," he says. "If anything does go wrong with our equipment, the database will reveal when and where the malfunctioning part was manufactured. Was it locally or in France? Who installed it? And importantly, what other work were they responsible for?"

Unique at a South African power station, this system will enable Escom to cross-reference reports of faults and mishaps against construction data. If a pattern is seen to emerge, such as a piece of equipment being susceptible to failure, Escom should be able to identify some potential problem areas and thus avert accidents.

When it comes to the safety of their workers within the nuclear plant, Escom has left nothing to chance. Working with the DP department, the Health Physics Group — in conjunction with a US consultant — spent four years creating the specifications for software to monitor both the short-term and long-term health and safety of Escom staff in the nuclear reactor environment.

"The Health and Physics Information System is designed to protect the worker and the public from the hazards of radiation," says Health Physics Group head Dr Brian Fitzpatrick.

"It allows us to compile from daily and monthly records a complete dose history of all persons registered as radiation workers at Koeberg. We can see that no one exceeds the legal limit for the year or administrative limits for shorter periods of the year. It has significantly added to our ability to track individual radiation levels and to compile historical records. The computer is an indispensable industrial tool."

The Health and Physics Information System uses two Hewlett-Packard 3000 minicomputers. One is primarily a complete back-up of the other, maintaining a real-time copy of the databases. Currently, eight major applications run on the systems, with the meteorological application running on the secondary system. There is a high degree of interdependence between seven of the eight applications, which typically contain 25 000 lines of Transact code.

Every person engaged in radiation work at Koeberg wears a thermoluminescent dosimeter (TLD), a device which measures radiation exposure levels. It is read by a complex instrument that converts the luminescence in an exposed TLD into raw data which the computer calculates into a true dose. This information is written to Personnel Dosimetry (Perdos) and the Historical Records database.

The Perdos database also contains the current year data with regard to training and health and generally builds up records that define the fitness of a worker to enter the controlled zone. The Health Physics Certificates (HPC) application contains data about the radiological requirements for performing

a job and the doses received. It prints barcoded certificates for each job.

Central to the Health Physics Information System is Access Control. On entry, it reads data from the HPC and Perdos and checks to see if access to the radiological controlled zone is authorised. On exit, it updates Perdos with the dose and HPC with a record of the entry, dose and duration.

The Historical Records module is the Legal Dose Register for Koeberg and contains the complete dose history of all registered radiation workers. Alara, (as low as reasonably achievable), tracks doses associated with particular jobs covered by a particular HPC. TLD Assignments is used to designate and track TLDs for individuals.

The Solid Radioactive Waste application is used for the planning, control and accountancy of solid radioactive waste, which is transported by road to the repository at Vaalputs in the far northern Cape.

Another module, Effluent Management (Effman), is a stand-alone application used for the evaluation and calculation of proposed and actual releases of radioactivity into the environment.

Effman monitors the very low-level emissions that occur when seawater — used to cool the turbine condensers — is pumped back into Table Bay.

Such controlled emissions are miniscule in comparison to the Chernobyl's massive radioactive leak.

Escom says a similar disaster at Koeberg is highly unlikely, given its significant design differences and stringent safety standards. For instance, Chernobyl had no containment building comparable to Koeberg, which is concrete about one metre thick and heavily reinforced with steel. The inside of this building is lined with steel to make it leak-proof.

Even so, Escom uses a software package designed to track a radioactive plume in the unlikely event of a major release. Developed by University of Natal scientist Mike Mulholland, this model uses data on the wind direction speed, and dispersion indices at Koeberg and five off-site stations to define Koeberg's atmospheric environment.

"This package must be the envy of the Russians," says Escom meteorologist Frikkie Potgieter. "Had they had software like this at Chernobyl, the Russians could have provided the West with accurate information about the plume's movements over Europe every 15 minutes."

The meteorological model runs on one of the dual HP 3000s and is part of the overall Health Physics Information System. The HP 3000 is the heart of the complex Meteorological System developed specifically for Koeberg's needs. As such, it goes a long way in meeting the European Nuclear Energy Safety Commission's need for such a system.

At five remote stations in a 16 km radius from Koeberg — Bokpoint, Atlantis, Rondekuil near Durbanville, Milnerton and Robben Island — dedicated microcomputers scan an array of sensors every 10 seconds and compile 15-minute averages of wind direction, wind magnitude, temperature and standard deviation of wind direction. At Koeberg, an Apple microcomputer interrogates these stations every 15 minutes via radio links and passes the data to the HP 3000 on request.

Similarly, three towers at Koeberg, one of which is 80 m high, contain sensors that are scanned every five seconds by dual HP 9816 micros. This data is checked for validity and transmitted as 15 minute averages to the HP 3000 on request. This information is made available in real time to the power station operating control room, emergency control room, as well as the meteorological station.

The default display is updated every 15 minutes with data of wind direction/plume direction, plume speed in metres a second and kilometres an hour, and the horizontal and vertical dispersion category. Also included are data trends for all the stations over the past 24 hours to seven days.

A quick-look graphics capability has been developed utilising a selectable time window, moving average and plot resolution. In the notoriously windy western Cape, predicting the wind direction would be a vital issue in the unlikely event of disaster.

"This package allows the operator to view groups of similar parameters to detect the most significant trends for the extrapolation of short-term forecasts," says Potgieter. "As a major function of the meteorological section is the prediction of affected areas during an accidental leak of gas, the real-time data

— in conjunction with the model — provides the tool for this. With these applications, the Koeberg meteorological system represents the first real-time emergency response capability in the Southern Hemisphere."

The debate about the desirability of nuclear power will not go away, particularly in a post-Chernobyl world increasingly concerned with conservation issues.

But faced with diminishing fossil fuel supplies, energy experts say humanity must make increasing use of nuclear power, or develop an alternative. As the latter is unlikely to happen in the short to medium term, Escom is setting a good example at Koeberg in its use of computers to maximise safety.

/9317
CSO: 5100/38

BRIEFS

FRG RADIATION REPORT ON TURKISH TEA--MILLIYET NEWS SERVICE--Tests conducted in West Germany revealed some brands of Turkish tea to be radiation free and others to have a radiation rate that has dropped to 14 becquerels. Meanwhile, the view was defended at a panel discussion at Hacettepe University that radiation is not a threat for Turkey. Tea Producers Organization Deputy General Director Nejat Ural said that the third batch of Turkish tea came out clean in the checks they conducted in the West German state of Hessen and that some others had dropped to 14 becquerels. Stating that the same results were obtained in measurements made in Berlin, Cologne and Vienna, Ural said, "The reports confirm the measurements of the Atomic Energy Commission. We have the reportsand we are fine in everything." [Text] [Istanbul MILLIYET in Turkish 17 Mar 87 p 14] 8349

CSO: 5100/2441

PUBLIC OPINION REGARDING NUCLEAR POWER CHANGES LITTLE OVER DECADE

Researchers Propose National Plebiscite

Helsinki HELSINGIN SANOMAT in Finnish 10 Mar 87 p 6

[Text] A national plebiscite on nuclear power ought to be organized, in which supporters of nuclear power and their heirs would pledge themselves to assume responsibility for any nuclear power plant accident with their property as forfeit. Opponents of nuclear power would, in turn, promise to pay a higher price for their electricity, the authors of a report compiled at the Technical University of Turku in which the importance of values in terms of energy policy is considered propose.

Funded by the Trade and Industry Ministry, the study was conducted by Prof Pentti Malaska and political science candidate Pirkko Kasanen. The report bears the title: "Nuclear Power--a Fateful Question ?"

According to the report, decisions on nuclear power plants should be drafted by a technological council composed of both laymen representing special interest groups and technological experts. The council would strive to see to it that "objective knowledge" does not exclude consideration of values in reaching decisions, but rather that it serves the latter.

Opponents of nuclear power should be gotten onto the board of directors of the Radiation Safety Center so that interpretation of data and monitoring would not be based on a one-sided attitude.

With their proposal for a plebiscite, the researchers are trying to see to it that the situation surrounding a decision involving a nuclear power plant is presented in such a way that everyone understands the importance of the different alternatives to his own well-being and is able to reach a sensible decision as far as he is concerned.

It would be essential in the event of a plebiscite to, in addition to adopting a position, also pledge oneself to accept the consequences of the decision.

Heirs Responsible Too

In this way supporters of nuclear power would pledge themselves to assume personal and corporate responsibility for damages caused by any nuclear power

plant accident, with their entire fortunes as forfeit. The pledge would be passed on as a legacy to the voter's descendants for as long as the power plant in question is in operation.

As for opponents of nuclear power, they would pledge themselves to pay a higher price than the supporters for the electricity they consume if it is decided to build a nuclear power plant. They would not, however, assume personal economic responsibility for damages.

The authors of the report are of the opinion that the differences between supporters and opponents lie chiefly in their world views.

The researchers ask: "How can we reach a so-called good decision on nuclear power when such an obvious conflict in values prevails, since a good decision consists of moral and rational acceptability?"

Long-Term Costs

According to Malaska and Kasanen, one of the problems in connection with nuclear power is the fact that it may produce costs in the long run that cannot now be taken into account in our calculations. If these costs could be included in our calculations, our feelings about the advantages of the different forms of energy in relation to one another might change.

In the report they also explain which cause-and-effect relations they feel are important in a discussion of nuclear power.

The defenders feel that the social aspect involved in reaching a decision is subordinate to the economic aspect. In their opinion, nuclear power will not produce any major problems with regard to either the natural environment or people's health.

The opponents, on the other hand, feel that decentralization of the decision-making power is important. The society should guide development of the economy and the risks of radiation must be taken into account.

The supporters of nuclear power feel that nuclear power is safe, while its opponents do not. In the opinion of the opponents of nuclear power, the energy supply can be organized in different ways and the defenders speak only of the possibilities of different kinds of futures for nuclear power.

The defenders believe in the economic feasibility of nuclear power, while its opponents do not. In the opinion of the defenders, economic growth will lead to more general prosperity. The opponents do not concede that this is so. The defenders feel that assuming the risk is warranted, while the opponents do not.

Such conflicts of values are crucial in reaching decisions on nuclear power. In the opinion of the researchers, the different values and social attitudes should be allowed to play a key role in the public debate and in the decision-making process.

Increase in Opponents Slight

Helsinki HELSINGIN SANOMAT in Finnish 15 Mar 87 p 46

[Article: "HELSINGIN SANOMAT Gallup Poll: Finns' Views on Nuclear Power Unchanged; Over Half Have Doubts About Power Plant Safety"]

[Text] Finns' views on the safety of nuclear power plants are now nearly the same as they were 9 years ago. Fifty-seven percent of voting-age Finns are of the opinion that nuclear power plants are either not very safe or not safe at all. Forty percent of them feel that nuclear power plants are completely or fairly safe.

These figures are taken from a Finnish Gallup poll conducted for HELSINGIN SANOMAT. Exactly the same questions were also asked in 1978. Opinions on nuclear power were divided in almost the same way in both polls. At the most, the changes amount to a few percentage points.

According to the Finnish Gallup Company, we can interpret the results as meaning that after 1978 opinions changed in favor of nuclear power plants, at least until the Chernobyl accident, and since then attitudes have returned to the level they were at 9 years ago.

One question was phrased: "In speaking of the employment of nuclear power, particular attention has been focused on the safety of these power plants from the standpoint of the environment. Furthermore, it has been pointed out that problems involving the transport of and radiation given off by hazardous waste produced by nuclear power plant operations have not yet been definitively solved. What is your view, in general, of all of these safety problems?"

Three percent of the respondents felt that nuclear power plants are completely safe and 37 percent fairly safe. Thirty-nine percent thought that nuclear power plants are not very safe and 18 percent that they are not safe at all.

Men trust nuclear power more than women. Fifty-three percent of the men felt that nuclear power plants are completely or fairly safe, while only 29 percent of the women did. With advancing age, the doubts increase. Only one out of four of those over 64 felt that nuclear power is safe.

Of the parties, the largest number (59 percent) of those who trust to the safety of nuclear power are Conservatives. Supporters of the Greens constitute the other extreme. Twenty-four percent of them felt that nuclear power plants are completely or fairly safe and, correspondingly, 76 percent that they are not safe.

Two Opinions on Talk About the Environment

During the poll respondents were also asked for their views on environmental protection. The question was phrased: "There has recently been a lot of talk in our country about environmental protection and the need for it. What sort of opinion do you have about such talk? In your opinion, have the dangers to our country's natural and other environment been presented in a way that corresponds to reality, have the dangers, in your opinion, perhaps in general

been exaggerated or have the dangers, in your opinion, in general been underestimated?"

The respondents were given three choices: The talk has been presented in a way that corresponds to reality, [the dangers] are in general exaggerated or are in general underestimated.

Opinions are split. Forty percent of them believe that the talk corresponds to reality. Slightly more of them (45 percent) are of the opinion that the problems have been underestimated. Eleven percent suspect that they have been exaggerated.

The same question was also asked in 1978. At that time the respondents had a bit more faith in the talk about damage to the environment. Nearly half of them then believed that the talk was presented in a way that corresponded to reality. Sixteen percent suspected that the problems were exaggerated. At that time 31 percent felt that the harm [to the environment] was underestimated in the talk about it.

The Finnish Gallup Company interviewed a total of 1,528 Finns between 22 and 27 February and asked them for their opinions on current issues. The responses represent the views of voting-age Finns with the exception of Aland.

Opinions on the Safety of Nuclear Power Plants
(percentages)

Responses	1978	1987
Completely safe	6	3
Fairly safe	37	37
Not very safe	38	39
Not at all safe	14	18
Could not say	5	2

11,466
CSO: 5100/2433

BRIEFS

RADIATION CONTAMINATED MEAT--After European countries returned our tea on the rationale that it was contaminated with "radiation," Saudi Arabia began sending back our meat claiming that the radiation rate was too high. A plane load of of meat sent to Jeddah last Friday by a meat combine headquartered in Izmir was found to have 24 of the 42 tons radiation contaminated. Investigation revealed that 12 tons of the meat with a high radiation count was sent back to Istanbul by a passenger plane of the Saudi Arabian Airlines. The remaining 12-ton shipment is to be sent today, it was learned. The health organizations which have been calling for attention to the matter vis-a-vis situations of this kind were not available for comment. [Text] Istanbul HURRIYET in Turkish 17 Mar 87 p 3] 8349

CSO: 5100/2432 END

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August 14, 1987

D.S.